ORDER NO. ARD81030032C8-10

Service Manual

Cassette Deck

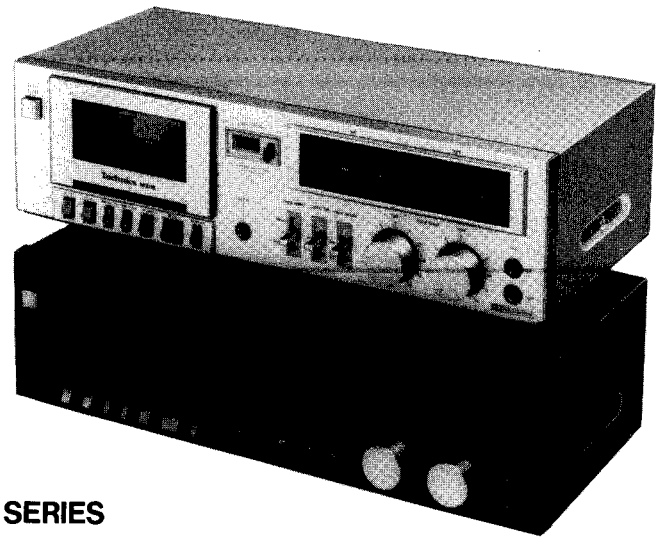
RS-M205

(Silver Face
Black Face)

Metal Tape Compatible Stereo Cassette Deck
with Soft-Touch Controls and Rewind
Auto-Play Convenience

DOLBY SYSTEM

This is the Service Manual for the following areas.
- [D] ..... For all European areas except United Kingdom.
- [N] ..... For Asia, Latin America, Middle East and Africa areas.
- [A] ..... For Australia.



RS-M24 MECHANISM SERIES

Specifications

Track system:	4-track 2-channel stereo recording and playback
Tape speed:	4.8 cm/s (1-7/8 ips.)
Wow and flutter:	0.05% (WRMS)
Frequency response:	Metal tape; 20 – 17,000 Hz 30 – 15,000 Hz (DIN) CrO_2 tape; 20 – 16,000 Hz 30 – 15,000 Hz (DIN) Normal tape; 20 – 15,000 Hz 30 – 13,000 Hz (DIN)
Signal-to-noise ratio:	Dolby* NR in; 66 dB (above 5 kHz) Dolby NR out; 56 dB (signal level = max. recording level, CrO_2 type tape)
Fast forward and rewind time:	Approx. 90 seconds with C-60 cassette tape
Inputs:	MIC; sensitivity 0.25 mV, input impedance 60 kΩ applicable microphone impedance 400Ω – 10 kΩ LINE; sensitivity 60 mV, input impedance 47 kΩ
Outputs:	LINE; output level 400 mV, output impedance 1.5 kΩ or less, load impedance 22 kΩ over HEADPHONES; output level 80 mV, load impedance 8Ω
Rec/pb connection:	5P DIN type; input sensitivity 0.25 mV, impedance 5.6 kΩ output level 400 mV, impedance 1.5 kΩ
Bias frequency:	80 kHz
Motor:	Electrical DC governor motor
Heads:	2-head system; 1-MX head for record/playback 1-double-gap ferrite head for erasure
Power requirements:	[D] ··· AC; 110/220 V, 50-60 Hz [N] ··· AC; 110/125/220/240 V, 50-60 Hz [A] ··· AC; 240 V
Power consumption:	10 W
Dimensions:	43.0 cm(W) × 12.2 cm(H) × 20.6 cm(D)
Weight:	3.9 kg

Specifications are subject to change without notice.

* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Technics

Matsushita Electric Trading Co., Ltd.
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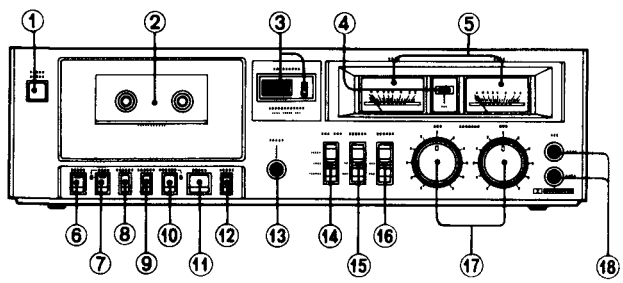
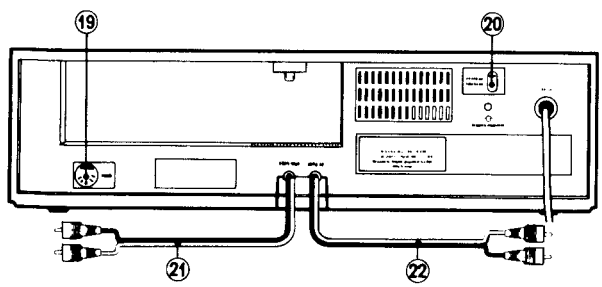
LOCATION OF CONTROLS AND COMPONENTS





① Power switch [power (push on)]
② Cassette holder
③ Tape counter and Reset button (tape counter)
④ Recording indication lamp (rec)
⑤ VU meters (left-level-right)
⑥ Eject button (▲ eject)
⑦ Record button (○ rec-⊡)
⑧ Rewind/Review button (◀◀ rew/rev)
⑨ Fast forward/Cue button (▶▶ ff/cue)
⑩ Play button (▶ play-⊡)
⑪ Stop button (■ stop)
⑫ Pause button (❙❙ pause)
⑬ Headhones jack (phones)
⑭ Tape selector [tape select (Metal•CrO_2•Normal)]
⑮ Dolby noise-reduction switch [Dolby NR (in•out)]
⑯ Input selector [input select (line•mic (DIN))]
⑰ Input level controls [input level (left•right)]
⑱ Microphone jacks [mic (left•right)]
⑲ Record/Playback connection socket (REC/PLAY)
⑳ Voltage selector (VOLTAGE SELECTOR)
* For all European areas except United Kingdom
* For Asia, Latin America, Middle East and Africa areas
㉑ Line output cord (LINE OUT)
㉒ Line input cord (LINE IN)

SECTION	MESURES ET REGLAGES
Ⓖ Courbe de réponse globale Condition: * Positions enregistrement/ lecture * Commande de niveau ...MAX. * Sélecteur de bande ...position Normal ...position CrO_2 ...position Metal Equipement: * Voltmètre électronique * Générateur AF * Atténuateur * Oscilloscope * Bande étalon vierge ...QZZCRA pour type Normal ...QZZCRX pour CrO_2 ...QZZCRZ pour Metal * Resistance (600Ω)	**Nota 1:** Avant de mesurer et régler, vérifiez que la courbe de réponse en lecture est correct (pour la méthode de mesure, reportez-vous au paragraph considéré). **Nota 2:** La bande d'essai QZZCRA qui sera fournie après juillet 1980 a une sensibilité d'enregistrement plus élevée dans la gamme des moyennes et des hautes fréquences. * Ce diagramme indique les valeurs standard pour le nouveau type de QZZCRA lorsque utilisé. * Ce diagramme indique les valeurs standard pour l'ancien type de QZZCRA lorsque utilisé. Le nouveau type de QZZCRA est marqueé comme montré sur la Fig. 13. **Réglage de la réponse de fréquence globale par l'enregistrement du courant de polarisation** Remarques: • Sur le RS-M205/RS-635, la réponse de fréquence globale est réglée avec le sélecteur de bande mis sur la position "Normal". • L'égaliseur d'enregistrement est fixe. 1. Effectuer les connexions comme indiqué dans la Fig. 14. 2. Mettre en entrée un signal de 1 kHz, −24 dB par l'intermédiaire de LINE IN. Placer l'appareil sur le mode Enregistrement. 3. Effectuer un réglage fin de l'atténuateur pour obtenir une sortie de LINE OUT de 0,4V. S'assurer que le signal d'entrée est bien de −24 dB ± 4 dB avec une tension de sortie de 0,4V. 4. Mettre le sélecteur de bande sur la position "Normal", et charger la bande d'essai (QZZCRA). 5. Régler l'atténuateur pour réduire de 20 dB le niveau du signal d'entrée. 6. Régler l'oscillateur de fréquence audio pour produire des signaux de 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz et 10 kHz, et enregistre ces signaux sur la bande d'essai. 7. Reproduire les signaux enregistrés dans la phase 6, et vérifier si la courbe de réponse de fréquence est comprise dans les spécifications du tableau de réponse de fréquence globale pour bandes normales, dans la Fig. 12. (Si la courbe est comprise dans les spécifications, passer aux phases 8, 9 et 10). Si la courbe ne correspond pas aux spécifications du tableau, régler comme suit. Réglage A : Lorsque la courbe dépasse les spécifications du tableau de réponse de fréquence globale (Fig. 12), comme indiqué dans la Fig. 15: 1) Augmenter le courant de polarisation en tournant VR101 (canal gauche) et VR102 (canal droit). (Voir Fig. 2). 2) Répéter les phases 6 et 7 pour confirmer. (Passer aux phases 8, 9 et 10 si la courbe est maintenant comprise dans les spécifications du tableau de la Fig. 12). 3) Si la courbe dépasse encore les spécifications (Fig. 12), augmenter encore le courant de polarisation et répéter les phases 6 et 7. Réglage B : Lorsque la courbe tombe au-dessous des spécifications du tableau de fréquence globale (Fig. 12), comme indiqué dans la Fig. 16. 1) Réduire le courant de polarisation en tournant VR101 (canal gauche) et VR102 (canal droit). 2) Répéter les phases 6 et 7 pour confirmer. (Passer aux phases 8, 9 et 10 si la courbe est maintenant comprise dans les spécifications du tableau de la Fig. 12). 3) Si la courbe tombe encore au-dessous des spécifications du tableau (Fig. 12), réduire encore le courant de polarisation et répéter les phases 6 et 7. 8. Mettre le sélecteur de bande sur la position CrO_2, changer la bande d'essai pour QZZCRX, et enregistrer des signaux de 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz et 12,5 kHz. Reproduire ensuite ces signaux et vérifier si la courbe est comprise dans le tableau de réponse de fréquence globale pour les bandes CrO_2 (Fig. 17). 9. Mettre le sélecteur de bande sur la position "Metal", changer la bande d'essai pour QZZCRZ, et enregistrer des signaux de 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz et 12,5 kHz. Reproduire ensuite ces signaux, et vérifier si la courbe est comprise dans le tableau de réponse de fréquence globale pour les bandes Métal (Fig. 17).

SECTION	MESURES ET REGLAGES
	10. Confirmer que les courants de polarisation sont approximativement les suivants lorsque le sélecteur de bande est mis sur les positions respectives. * Lisez la tension sur le voltmètre électronique et calculez le courant de prémagétisation selon la formule. Courant de prémagnétisation (A) = $\frac{\text{Tension lue sur voltm. élec. (V)}}{10\ (\Omega)}$ **Autour de 410 μA (position Normal)** **Autour de 545 μA (position CrO_2)** **Autour de 800 μA (position Metal)** **: Mesuré à TPI (L-CH) et TP2 (R-CH)**
Ⓗ Gain global Condition: * Positions enregistrement/lecture * Commande de niveau LINE IN...MAX. * Niveaux d'entrée normaux MIC −72 ± 4dB LINE IN −24 ± 4dB Equipement: * Générateur AF * Voltmètre électronique * Atténuateur * Oscilloscope * Bande étalon vierge QZZCRA pour type de bande normale * Resistance (600Ω)	1. Branchez les appareils comme sur la Fig. 18. 2. Placez l'appareil en position enregistrement, le sélecteur de bande sur position normale. 3. Appliquez un signal à 1 kHz (−24 dB) du générateur AF, à travers l'atténuateur, à l'entrée LINE IN. 4. Réglez l'atténuateur pour que le niveau d'écoute simultanée sur LINE OUT soit de 0,4V. 5. Faistes un enregistrement avec la bande étalon (QZZCRA). 6. Lisez la bande ainsi enregistrée, et vérifiz que la valeur lue sur le voltmètre électronique branché sur LINE OUT est bien de 0,4V. 7. Si la valeur mesurée est différente, réglez VR5 (canal gauche) et VR6 (droit) (voir Fig. 2). 8. Recommencez à partir du palier (2).
Ⓘ Indicateur de niveau Condition: * Position enregistrement * Commande de niveau ...MAX. * Selecteur de band ...position Normal Equipement: * Voltmètre électronique * Générateur AF * Atténuateur * Resistance (600Ω)	1. Effectuer et vérifier les connexions des appareils comme indiqué dans la Fig. 19. 2. Mettre en entrée un signal de 1kHz (−24dB) par l'intermédiaire de LINE IN, puis appuyer sur le bouton d'enregistrement. 3. Régler l'atténuateur de sorte que le niveau de sortie à la fiche LINE OUT soit de 0,4V (le niveau d'entrée à cette position est nommé le niveau d'entrée standard). 4. A cet instant, vérifier que la lecture de l'indicateur de niveau oscille dans la plage −1,5dB + 1,5dB (voir Fig. 20). (Effectuer cette opération pour le canal gauche et le canal droit.)
Ⓙ Circuit Dolby Condition: * Position enregistrement * Commande de niveau LINE IN...MAX. * Sélecteur de Dolby ...OUT/IN Equipement: * Voltmètre électronique * Générateur AF * Atténuateur * Oscilloscope * Resistance (600Ω)	1. Branchez les appareil comme sur la Fig. 22. 2. Placez l'appareil en position enregistrement et le sélecteur Dolby en position OUT, puis appliquez un signal à 5 kHz à l'entrée LINE IN pour obtenir −34,5 dB sur TP5 (canal gauch) et TP6 (droit). 3. Vérifier que la valeur en position IN du sélecteur Dolby augmente de 8 (±2,5) dB par rapport à celle obtenue en position OUT.

RS-M205/RS-635 FRANCAIS

MESURES ET REGLAGE

NOTA:

Pour garder l'appareil en bon état de marche, positionner les commuteurs á levier et les commandes dans les positions suivantes, sauf indication contraire.

- Vérifiez que les têtes soiènt propres.
- Vérifiez que le cabestan et le galetpressure soient propres.
- Température ambiante admissible: 20 ± 5°C.
- Sélecteur de Dolby: OUT.
- Sélecteur de bande: position normal.
- Commutateur de test de crête: LINE.
- Commande de niveau: MAX.

SECTION	MESURES ET REGLAGES
Ⓐ **Réglage de la position de la tête** Condition: * Le mode de lecture et pause	Il y a une plaque de réglage de la tête pour ajuster le contact de bande de la tête en mode de repérage avant ou arrière. 1. Appuyer sur le bouton de lecture (PLAY) et le bouton de pause. 2. Mesure l'espace qui sépare le galet presseur du cabestan. Valeur standard: 0,5±0,3mm. 3. Si la valeur mesurée se trouve hors tolérances, desserrer la vis A, et glisser la plaque de réglage de la tête dans la direction de la flèche B pour effectuer le réglage.
Ⓑ **Azimutage de tête** Condition: * Position lecture Equipement: * Voltmètre électronique * Oscilloscope * Bande étalon (azimutage)...QZZCFM	**Réglage de l'azimut de tête** Réglage de l'équilibre de la sortie de canal gauche/canal droit. 1. Effectuer les connexions comme indiqué dans la Fig. 4. 2. Reproduire le signal de 8 kHz de la bande d'essai (QZZCFM). Régler la vis (B) dans la Fig. 5 pour obtenir les niveaux de sortie maximum pour les canaux gauche et droit. Lorsque les niveaux de sortie des canaux gauche et droit ne sont pas simultanément à leur maximum, les re-régler de la façon suivante. 3. Faire tourner la vis indiquée dans la Fig. 5 pour trouver les angles A et C (point où les niveaux de sortie de crête pour les canaux gauche et droit sont obtenus respectivement). Situer alors l'angle B entre les angles A et C, autrement dit, en un point où les niveaux de sortie des canaux gauche et droit atteignent tous deux leur maximum. (Voir les Fig. 5 et 6). **Réglage de phase canal gauche/canal droit** 4. Effectuer les connexions comme indiqué dans la Fig. 7. 5. Reproduire le signal de 8 kHz de la bande d'essai (QZZCFM). Régler la vis (B) indiquée dans la Fig. 5 de sorte que les ai uilles des deux voltmètres électroniques oscillent au maximum, et qu'on obtienne sur l'oscilloscope une forme d'onde semblable à celle indiquée dans la Fig. 8.
Ⓒ **Vitesse de défilement** Condition: * Position lecture Equipement: * Compteur électronique numérique ou fréquencemètre numérique * Bande étalon...QZZCWAT	**Précision de la vitesse de défilement** 1. Branchez les appareils comme ci-dessous. (Voir Fig. 9). 2. Lire la bande étalon (QZZCWAT 3000Hz) dans la section centrale, et appliquer le signal de sortie au fréquencemètre. 3. Mesurez sa fréquence. 4. Sur la base de 3000 Hz, déteminez la valeur à l'aide de la formule. Précision de vitesse = $\frac{f-3000}{3000} \times 100$ (%) avec f = valeur mesurée. 5. Effectuez la mesure sur la partie médiane de la bande. **Valeur normale: ±1,5%** **Méthode de réglage** 1. Lisez la bande étalon (milieu). 2,3. Ajustez la vis de réglage de vitesse VR indiquée Fig. 1 pour que la fréquence devienne égale à 3000 Hz. **Eluctuations de vitesse de défilement** Faites les mesures de la même facon que ci-dessus (au début, au milieu et en fin de bande) et déterminez la différence entre les valeurs maximale et minimale, puis calculez comme suit.

SECTION	MESURES ET REGLAGES
	Fluctuations de vitesse = $\frac{f_1-f_2}{3000} \times 100$ (%) f_1 = valeur maximale f_2 = valeur minimale **Valeur normale: monis de 1%** **Nota:** Utiliser un tournevis non métallique pour régler la vitesse de bande de cet appareil avec précision.
Ⓓ **Réponse en fréquence à la lecture** Condition: * Position lecture * Sélecture de bande ...position Normal Equipement: * Voltmètre électronique * Oscilloscope * Bande étalon...QZZCFM	1. Branchez les appareils de mesure comme pour "l'azimutage de tête", mais en utilisant la bande étalon (QZZCFM) au lies de la bande étalon d'azimutage (Voir Fig. 4). 2. Placez l'appareil en position lecture. 3. Lisez la bande étalon de courbe de réponse (QZZCFM). 4. Mesurez les niveaux de sortie à 315 Hz, 12,5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz et 63 Hz et comparez chaque niveau de sortie avec celui de la fréquence étalon de 315 Hz, sur la borne LINE OUT. 5. Effectuez la mesure sur les deux canaux. 6. Vérifiez que les valeurs mesurées se situent à l'intérieur du gabarit de courbe de réponse. (Voir Fig. 10).
Ⓔ **Gain à la lecture** Condition: * Position lecture * Sélecteur de bande ...position Normal Equipement: * Voltmètre électronique * Oscilloscope * Bande étalon...QZZCFM	1. Branchez les appareils comme ci-dessous. (Voir Fig. 4). 2. Lisez la partie "niveau standard" de la bande étalon (QZZCFM, 315 Hz) et mesurez le niveau de sortie, avec le voltmètre électronique, sur le jack LINE OUT. 3. Effectuez les mesures sur les deux canaux. **Valeur normale: 0,4V±1dB [environ 0,42V: aux points d'essai TP5 (L-CH) et TP6 (R-CH)].** **Réglage** 1. Si la valeur mesurée n'est pas correct, réglez VR1 (canal gauche) et VR2 (droit) (Voir Fig. 2). 2. Après réglage, vérifiez à nouveau la "réponse en fréquence à la lecture".
Ⓕ **Courant d'effacement** Condition: * Position enregistrement * Sélecteur de bande ...position Metal Equipement: * Voltmètre électronique * Oscilloscope	1. Branchez les appareils comme ci-dessous. (Voir Fig. 11). 2. Appuyez sur les boutons d'enlegistrement et de pause. 3. Place le selecteur de bande à la position "Metal". 4. Déterminer le courant d'effacement avec la formule suivante. Courant d'effacement (A) = $\frac{\text{Tension aux bornes de la résistance R101 (V)}}{1\ (\Omega)}$ **Valeur normale: 160 $^{+10}_{-20}$mA (position Metal)** 5. Si la valeur mesurée ne correspond pas à la norme, réglez de la maniére suivante. **Réglage** 1. Ouvrir le point (A) et court-circuiter le point (B) sur la plaquette de circuit principale dans le schéma de câblage. (Voir page 8). 2. Mesurer la valeur du courant d'effacement. 3. S'assurer que la valeur mesurée se trouve entre 140 mA et 170 mA. 4. Si elle se situe au-delà de la valeur, proéder aux réglages suivants. • Si le courant d'effacement est inférieur à 140 mA, courtcircuiter le point (A). • Si le courant d'effacement est supérieur à 170 mA, ouvrir le point (A) et le point (B).

Gegenstand	Messung und Einstellung
Ⓖ Gesamt-frequenzgang Bedingung: * Aufnahme und Wiedergabe * Eingangsregler...Max. * Bandwahl Schalter ...Normal position ...CrO_2 position ...Metal position Meßgerät: * Röhrenvoltmeter * NF-Generator * Abschwächer * Oszillograf * Testband (Leerband) QZZCRA für Normal QZZCRX für CrO_2 QZZCRZ für Metal * Widerstand (600Ω)	**Anm. 1:** Vor Messung und Abgleich des Gesamtfrequenzganges ist sicherzustellen, daß der Frequenzgang bei Wiedergabe korrekt ist (Vgl. entspr. Abschnitt). **Anm. 2:** Das ab Juli 1980 erhältliche Testband QZZCRA hat eine höhere Aussteuerbarkeit im mittleren und hohen Frequenzbereich. * ×□ Diese Werte gelten für das neue Testband QZZCRA. * ×□ Diese Werte gelten für das alte Testband QZZCRA. Das neue Testband QZZCRA ist wie in Fig. 13 gekennzeichnet. **Gesamtfrequenzgang-Justierung durch Aufnahme-Vormagnetisierungsstrom** Anmerkungen:• Am RS-M205/RS-635 wird der Gesamtfrequenzgang mit dem Bandschalter in der Normal-Position justiert. • Der Aufnahmeentzerrer ist fest eingestellt. 1. Den Meßaufbau zeigt Fig. 14. 2. An LINE IN ein Signal von 1kHz, −24dB zuführen. Das Gerät in den Aufnahmezustand versetzen. 3. Den Dämpfungswiderstand feineinstellen, bis die Ausgangsleistung au LINE OUT 0.4V beträgt. * Überprüfen, daß der Signalausgangspegel bei einer Ausgangsspannung von 0,4V −24dB ±4dB beträgt. 4. Den Bandschalter in die Normal-Position stellen, und Test-band (QZZCRA) einlegen. 5. Den Dämpfungswiderstand so einstellen, daß der Eingangssignalpegel um 20dB reduziert wird. 6. Mit dem NF-Oszillator Signale von 50Hz, 100Hz, 200Hz, 500Hz 1kHz, 4kHz, 8kHz, 10kHz zuführen, und diese Signale auf das Testband aufzeichnen. 7. Die in Schritt 6 aufgezeichneten Signale wiedergeben, und überprüfen, ob die Frequenzgangkurve innerhalb des Bereichs liegt, der im Frequenzgangdiagramm für normales Band in Fig. 12 gezeigt ist. (Falls die Kurve innerhalb des vorgeschriebenen Bereichs liegt, mit den Schritten 8,9 und 10 weiterfahren.) Falls die Kurve außerhalb des vorgeschriebenen Bereichs liegt, wie folgt justieren. Justierung A : Wenn die Kurve den vorgeschriebenen Gesamtfrequenzgangbereich (Fig. 12) überschreitet, wie in Fig. 15 gezeigt.: 1. Den Vormagnetisierungsstrom durch Drehen von VR101 (linker Kanal) und VR102 (rechter Kanal) erhöhen. (S. Fig. 2). 2. Die Schritte 6 und 7 zur Überprüfung wiederholen. (Wenn die Kurve dabei innerhalb des vorgeschriebenen Bereichs liegt (Fig. 12), mit den Schritten 8,9 und 10 weiterfahren. 3. Wenn die Kurve den vorgeschriebenen Bereich (Fig. 12) noch immer überschreitet, den Vormagnetisierungsstrom weiter erhöhen, und die Schritte 6 und 7 wiederholen. Justierung B : Wenn die Kurve unter den vorgeschriebenen Bereich für den Gesamtfrequenzgang (Fig. 12) absinkt, wie in Fig. 16 gezeigt: 1. Den Vormagnetisierungsstrom durch Drehen von VR101 (linker Kanal) und VR102 (rechter Kanal) reduzieren. 2. Die Schritte 6 und 7 zur Überprüfung wiederholen. (Falls die Kurve dabei innerhalb des vorgeschriebenen Bereichs in Fig. 12 liegt, mit den Schritten 8, 9 und 10 weiterfahren.) 3. Falls die Kurve noch immer unter den vorgeschriebenen Bereich (Fig. 12) absinkt, den Vormagnetisierungsstrom weiter reduzieren, und Schritte 6 und 7 wiederholen. 8. Den Bandschalter in die „CrO_2"-Position stellen, Testband QZZCRX einlegen, und Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz und 12,5kHz aufzeichnen. Anschließend die Signale wiedergeben und prüfen, ob die Kurve innerhalb des Bereichs im Gesamtfrequenzgangdiagramm für CrO_2-Band liegt. (Fig. 17) 9. Den Bandschalter in die Metall-Position stellen, Test-band QZZCRZ einlegen und Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz und 12,5kHz aufnehmen. Anschließend die Signale wiedergeben und prüfen, ob die Kurve innerhalb des Bereichs im Gesamtfrequenzgangdiagramm für Metallband liegt. (Fig. 17)

Gegenstand	Messung und Einstellung
	10. Überprüfen, daß die Vormagnetisierungsströme ungefähr den folgenden Werten entsprechen, wenn der Bandschalter in die entsprechende Position gestellt ist. * Spannung vom Röhrenvoltmeter ablesen und Vormagnetisierungsstrom nach folgender Formel berechnen: Vormagnetisierungsstrom (A) = Spannung am Röhrenvoltmeter (V) / 10 (Ω) **Ungefähr 410 μA (Normal position)** **Ungefähr 545 μA (CrO_2 position)** **Ungefähr 800 μA (Metal position)** **: Gemessen an TP1 (L-CH) und TP2 (R-CH)**
Ⓗ Gesamt-Verstärkung Bedingung: * Aufnahme und Wiedergabe * Eingangsregler...Max. * Standard-Eingangspegel Mikrofon −72±4dB NF-Eingang −24±4dB Meßgerät: * NF-Generator * Röhrenvoltmeter * Abschwächer * Oszillograf * Testband (Leerband) QZZCRA für Normal * Widerstand (600Ω)	1. Den Meßaufbau zeigt Fig. 18. 2. Gerät auf "Aufnahme", und Bandwalschalter auf Normal Position stellen. 3. Über den Sbschwächer 1kHz aus dem NF-Generator (−24dB) dem NF-Eingang zuführen. 4. Den Abschwächer so einstellen, daß am NF-Ausgang stehen. 0.4V stehen. 5. Dieses Signal auf Testband (QZZCRA) aufnehmen. 6. Diese Aufnahme wiedergeben und prüfen, ob am NF-Ausgang 0.4V stehen. 7. Ist des nicht der Fall, so sind VR5 (linker Kanal) und VR6 (rechter Kanal) entsprechend abzugleichen (Siehe Fig. 2) 8. Ab Punkt 2 wiederholen.
Ⓘ Fluorezenzmeter Bedingung: * Aufnahme * Eingangsregler...Max. * Bandwahl Schalter ...Normal position Meßogerät: * Röhrenvoltmeter * NF-Generator * Abschwächer * Widerstand (600Ω)	1. Der Testgeräte-Anschluß wird in Fig. 19 gezeigt. 2. Ein 1kHz-Signal (−24dB) in den LINE IN eingeben und dann die Aufnahmetaste drücken. 3. Das Dämpfungsglied so einstellen, daß der Ausgangspegel beim LINE OUT 0,4V wird (Der Eingangspegel in diesem Zustand wird der Normaleingangsüegel genannt). 4. Zu dieser Zeit darauf achten, daß die Pegelmesser-Ablesung innerhalb eines Bereiches von −1,5dB bis +1,5dB ist (in Fig. 20 gezeigt). (Dies sowohl für den linken als auch rechten Kanal prüfen).
Ⓙ Dolby-Schaltung Bedingung: * Aufnahme * Eingangsregler...Max. * Dolby-Schalter ...OUT/IN Meßgerät: * Röhrenvoltmeter * NF-Generator * Abschwächer * Oszillograf * Widerstand (600Ω)	1. Die Verrindungen des Prüfaufbaus sind in Fig. 22 wiedergegeben. 2. Gerät in Stellung "Aufnahme" betreiben und Dolby-Schalter ausschalten. Dem NF-Eingang ein 5kHz-Signal zuführen, daß and TP5 (Linker Kanal) und TP6 (Rechter Kanal) −34,5dB erhalten werden. 3. Prüfen, ob das Signal bei eingeschaltetem Dolby-Schalter um 8 (±2,5) dB größer ist als bei ausgeschaltetem Dolby-Schalter.

RS-M205/RS-635 DEUTSCH

Messungen und Einstellungen

Anm.:

Für gute Meßbedingungen sorgen. Falls nicht anders angegeben, die Schalter und Regler in folgende positionen stellen.

- Für saubere Köpfe sorgen.
- Für saubere Tonwelle und Andruckrolle sorgen.
- Auf normale Raumtemperature achten: 20 ± 5°C
- Dolby-Schalter: Aus.
- Bandwahl Schalter: Normal-Position.
- Spitzenwertschalter: LINE.
- Eingangsregler: MAX.

Gegenstand	Messung und Einstellung
Ⓐ Tonkopf-Positionierung Bedingung: * Wiedergabe und Pause	Die Tonkopf-Positionierplatte dient zum Einstellen des Kontakts zwischen Tonkopf und Band während der Betriebszustände „Cue" und „Review". 1. Die Wiedergabetaste PLAY und die Pausetaste drücken. 2. Den Abstand zwischen der Andrucksrolle und der Tonwelle messen. Sollwert: 0,5 ± 0,3 mm 3. Falls der Meßwert außerhalb des Toleranzbereichs liegt, die Schraube A lösen und die Tonkopf-Positionierplatte in pfeilrichtung B schieben, um den Kopfkontakt einzustellen.
Ⓑ Senkrechtstellen des Kopfes Bedingung: * Wiedergabe Meßgerät: * Röhrenvoltmeter * Oszillograf * Testband...QZZCFM	**Kopfazimut-Justierung** **Ausgangsbalance-Justierung für linken und rechten Kanal** 1. Den Meßaufbau zeigt Fig. 4. 2. 8kHz-Signal des Testbandes (QZZCFM) wiedergeben. Schraube (B) in Fig. 5 auf maximalen Ausgangspegel des linken und rechten Kanals abgleichen. Wenn die Ausgangspegel des linken und rechten Kanals nicht gleichzeitig maximal sind, wie folgt justieren. 3. Durch Drehen der in Fig. 5 gezeigten Schraube die Winkel A und C (Punkt, wo der Spitzenausgangspegel für den linken, bzw. rechten Kanal ereicht wird ermitteln. Anschließend den Winkel B zwischen dem Winkel A und C ermitteln, d.h. den Punkt, wo der Ausgangspegel des linken und rechten Kanals bei maximalem Pegel zusammentreffen. (Siehe Fig. 5 und 6.) **Phasenjustierung für linken und rechten Kanal** 4. Den Meßaufbau zeigt Fig. 7. 5. 8kHz-Signal des Testbandes (QZZCFM) wiedergeben. Schraube (B) in Fig. 5 so einstellen, daß Zeiger von zwei Röhrenvoltmetern auf Maximum ausschlagen, und am Oszillografen eine Wellenform, wie in Fig. 8, erreicht wird.
Ⓒ Bandgeschwindigkeit Bedingung: * Wiedergabe Meßgerät: * Elektronischer Digitalzähler * Testband...QZZCWAT	**Genauigkeit der Bandgeschwindigkeit** 1. Den Meßaufbau zeigt Fig. 9. 2. Das Testband (QZZCWAT 3000 Hz) beim mittleren Teil wiedergeben und das Wiedergabesignal in den Frequenzzähler eingeben. 3. Frequenz messen. 4. Beträgt die auf dem Testband aufgezeichnete Frequenz 3000 Hz, so ergibt sich die Genauigkeit nach folgender Formal: Genauigkeit der Bandgeschwindigkeit = $\frac{f-3000}{3000} \times 100\ (\%)$ worin f die gemessene Frequenz ist. 5. Die Messung soll im mittleren Teil des Bandes erfolgern. **NORMALWERT: ±1,5%** **Einstellung:** 1. Den mittleren Teil des Testbandes wiedergeben. 2,3. Die Einstellschraube VR Vgl Fig. 1 so verstellen, daß eine Frequenz von 3000 Hz angezeig wird. **Schwankung der Bandgeschwindigkeit:** Messung, wieoben beschrieben für Anfang, mittleren Teil und Ende des Testbandes wiederholen und Schwankung wie folgt bestimmen:

Gegenstand	Messung und Einstellung
	Schwankung = $\frac{f_1-f_2}{3000} \times 100\ (\%)$ f_1 = Maximalwert f_2 = Minimalwert **NORMALWERT: Weniger als 1%** **Anm:** Verwenden Sie einen nichtmetallischen Schraubenzieher wenn Sie die Bandgeschwindigkeit justieren.
Ⓓ Frequenzgand bie Wiedergabe Bedingung: * Wiedergabe * Bandwahl Schalter ...Normal position Meßgerät: * Röhrenvoltmeter * Oszillograf * Testband...QZZCFM	1. Den Meßaufbau zeigt Fig. 4, jedoch ist jetzt das Testband QZZCFM zu verwenden. 2. Gerät auf "wiedergabe" schalten. 3. Frequenzgang-Testband QZZCFM wiedergeben. 4. Ausgangsspannungen bei 315 Hz, 12,5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz und 63 Hz mit Ausgangsspannung der Standard Frequenz 315 Hz vergleichen. 5. Messungen an beiden Kanälen durchfüberen. 6. Prüfen, ob die Werte innerhalb der in Fig. 10, dargestellten Kurven liegen.
Ⓔ Wiedergabe-Verstärkung Bedingung: * Wiedergabe * Bandwahl Schalter ...Normal position Meßgerät * Röhrenvoltmeter * Oszillograf * Testband...QZZCFM	1. Den Meßaufbau zeigt Fig. 4. 2. Standard-Frequenz (QZZCFM 315 Hz) vom Testband wiedergeben und Ausgangsspannung messen. 3. Messung an beiden Kanälen durchführen. **NORMALWERT: 0,4V ± 1 dB [Ungefähr 0,42V: an den Meßpunkten TP5 (L-CH) und TP6 (R-CH)].** **Einstellung:** 1. Abweichungen können durch Abgleich von VR1 (Linker Kanal) und VR2 (Rechter Kanal) (S. Fig. 2) korrigiert werden. 2. Nach effolgtem Abgleich ist der Frequenzgang bei Wiedergabe erneut zu kontrollieren.
Ⓕ Löschstrom Bedingung: * Aufnahme * Bandwahl Schalter ...Metal position Meßgerät: * Röhrenvoltmeter * Oszillograf	1. Den Meßaufbau zeigt Fig. 11. 2. Die Aufnahme-und Pausentaste drücken. 3. Den Bandwahlschalter in die „Metal"-Position stellen. 4. Löschstrom nach folgender Formel emitteln: Löschstrom (A) = $\frac{\text{Die Spannung über beide Enden von R101 (V)}}{\text{1 (Ohm)}}$ **NORMALWERT: $160\ ^{+10}_{-20}$ mA (Metal position)** 5. Falls der Meßwert nicht im vorgeschriebenen Bereich liegt, auf folgende Weise einstellen. **Einstellung:** 1. Die Stelle (A) unterbrechen und den Punkt (B) im Verdrahtungsplan auf der Hauptleiterplatte kurzschließen. (Siehe Seite 8.) 2. Den Löschstrom messen. 3. Überprüfen, ob der gemessene Löschstrom zwischen 140 mA und 170 mA liegt. 4. Falls er außerhalb dieses Bereichs liegt, folgende Schritte ausführen. • Beträgt der Löschstrom weniger als 140 mA, den Punkt (A) kurzschließen. • Beträgt der Löschstrom mehr als 170 mA, die Stellen (A) und (B) unterbrechen.

DISASSEMBLY INSTRUCTIONS

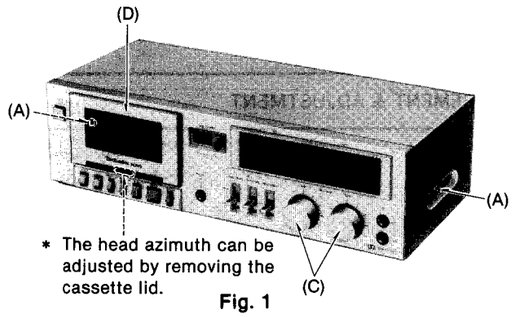


Fig. 1

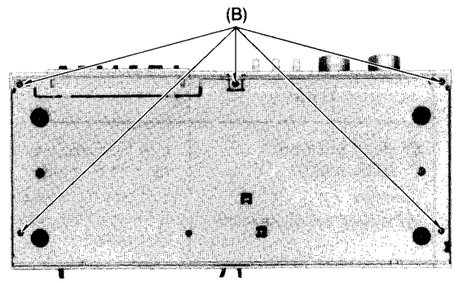


Fig. 2

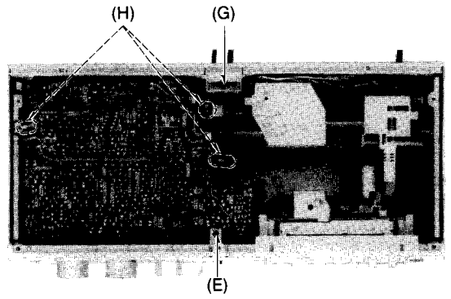


Fig. 3

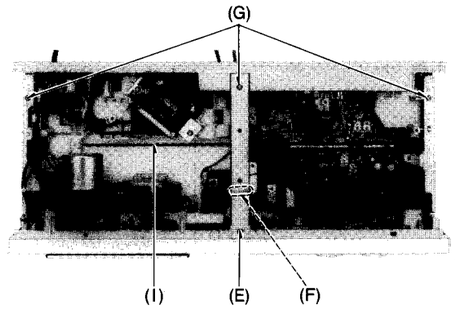


Fig. 4

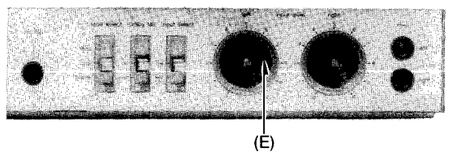


Fig. 5

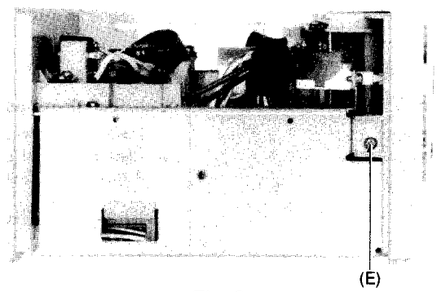


Fig. 6

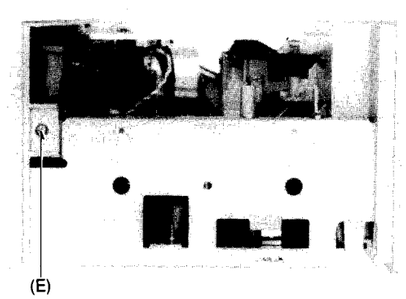


Fig. 7

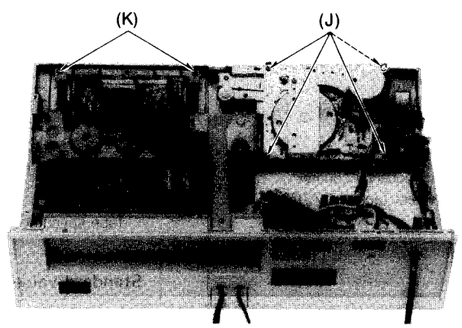


Fig. 8

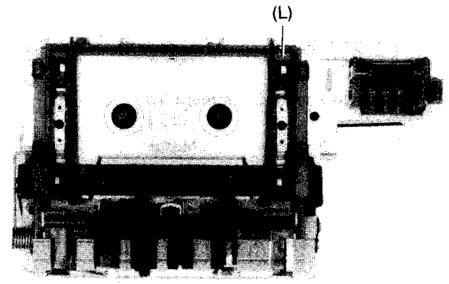


Fig. 9

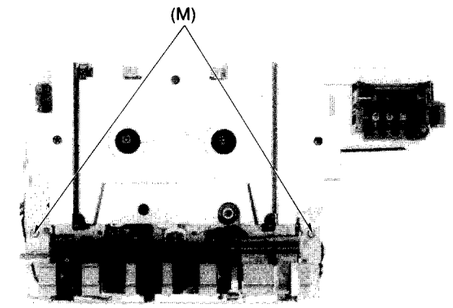


Fig. 10

Ref. No.	Procedure	To remove —— .	Remove —— .	Shown in fig. —— .
1	1	Case cover	• 2 screws ····· (A)	1
2	2	Bottom cover	• 5 screws ····· (B)	2
3	1 → 2 → 3	Front panel	• 2 control knobs ····· (C) • Cassette lid ····· (D) • 5 screws ····· (E) • Binder ····· (F)	1 1 3, 4, 5, 6, 7 4
4	1 → 2 → 4	Back chassis	• 4 screws ····· (G) • 3 binders ····· (H) • Recording wire ····· (I)	3, 4 3 4
5	1 → 2 → 3 → 5	Mechanism unit	• 4 screws ····· (J)	8
6	1 → 2 → 3 → 6	Level meter	• 2 screws ····· (K)	8
7	1 → 2 → 3 → 5 → 7	Operation button unit	• Cassette holder ····· (L) • 2 screws ····· (M)	9 10

MEASUREMENT AND ADJUSTMENT METHODS

ADJUSTMENT PARTS LOCATION

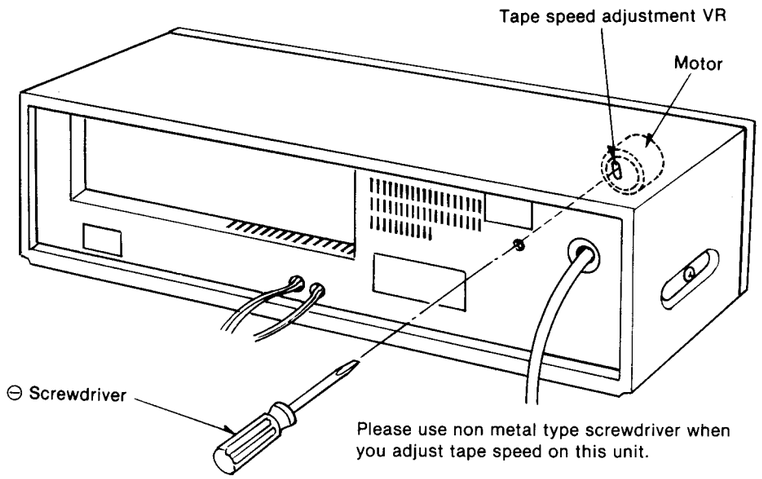

Tape speed adjustment VR
Motor
⊖ Screwdriver
Please use non metal type screwdriver when you adjust tape speed on this unit.

Fig. 1

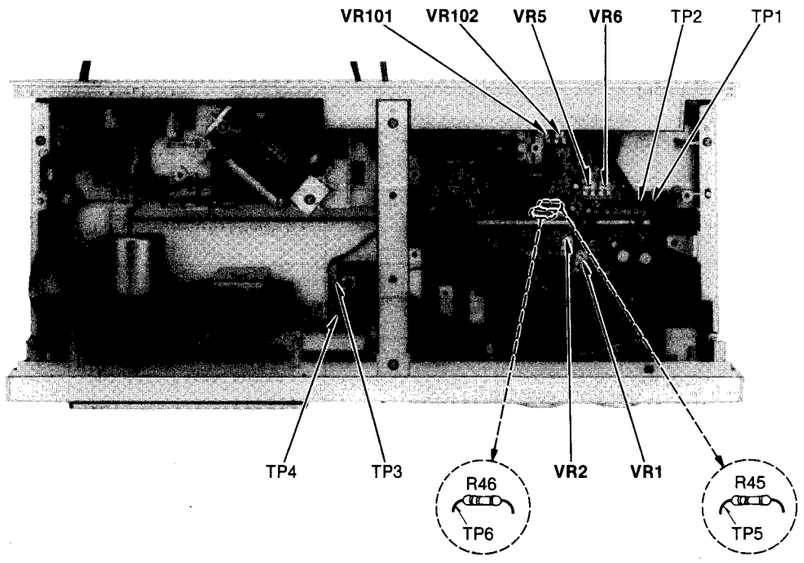
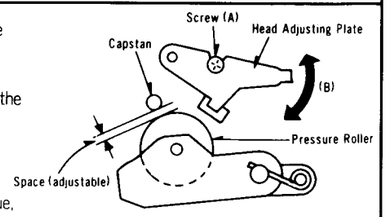
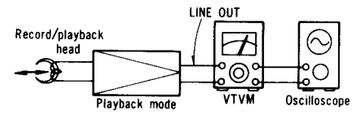
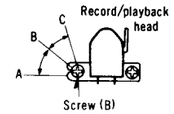
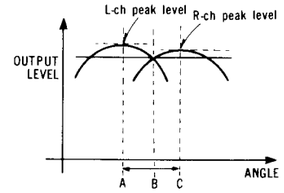
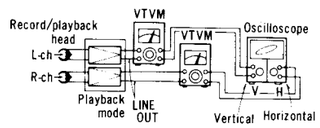
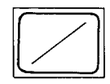
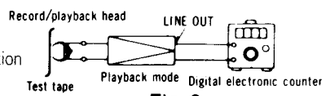
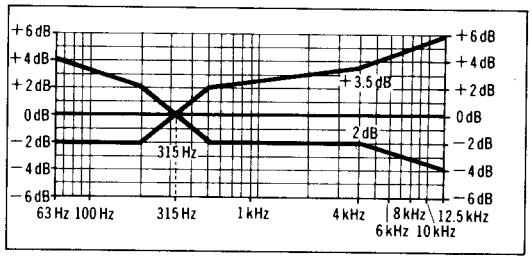
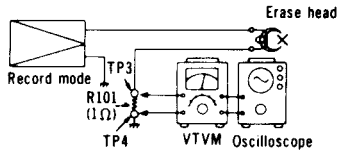
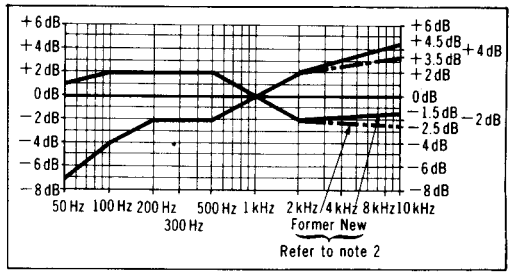


Fig. 2

NOTES: Keep good condition, set switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: 20 ± 5°C (68 ± 9°F)
- Dolby NR switch: OUT
- Tape selector: Normal position
- Input selector: Line in
- Input level controls: Maximum

ITEM	MEASUREMENT & ADJUSTMENT
Ⓐ Head position adjustment Condition: • Playback and pause mode	(The head adjusting plate is provided to adjust the tape touch of the head in cue or review mode.) 1. Press the playback button and pause button. 2. Measure the space between the pressure roller and the capstan. **Standard value: 0.5 ± 0.3 mm** 3. If the measured value is not within the standard value, untighten screw (A), and slide the head adjusting plate in the direction of arrow (B) for adjustment.  Fig. 3
Ⓑ Head azimuth adjustment Condition: • Playback mode Equipment: • VTVM • Oscilloscope • Test tape (azimuth) ··· QZZCFM	**L-ch/R-ch output balance adjustment** 1. Make connections as shown in fig. 4.  Fig. 4 2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 5 for maximum output L-ch and R-ch levels. When the output levels of L-ch and R-ch are not at maximum at the same time, readjust as follows. 3. Turn the screw shown in fig. 5 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate the angle B between angles A and C, i.e., a point where L-ch and R-ch output levels come together at maximum. (Refer to figs. 5 and 6.)  Fig. 5  Fig. 6 **L-ch/R-ch phase adjustment** 4. Make connections as shown in fig. 7. 5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 5 so that pointers of the two VTVMs swing to maximum and a waveform as illustrated in fig. 8 is obtained on the oscilloscope.  Fig. 7  Fig. 8
Ⓒ Tape speed Condition: • Playback mode Equipment: • Digital electronic counter or frequency counter • Test tape ··· QZZCWAT	**Tape speed accuracy** 1. Test equipment connection is shown in fig. 9. 2. Playback test tape (QZZCWAT 3,000Hz) at middle section and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3{,}000}{3{,}000} \times 100\,(\%)$ where, f = measured value **Standard value: ± 1.5%**  Fig. 9 **Adjustment method** 1. Playback the test tape (middle). 2. Adjust so that frequency becomes 3,000Hz. 3. Tape speed adjustment VR shown in fig. 1.

ITEM	MEASUREMENT & ADJUSTMENT
	Tape speed fluctuation Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows: $\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3{,}000} \times 100\,(\%)$ f_1 = maximum value, f_2 = minimum value **Standard value: Less than 1%** **Note:** Please use non metal type screwdriver, when you adjust tape speed accuracy on this unit.
Ⓓ Playback frequency response Condition: • Playback mode • Tape selector ··· Normal position Equipment: • VTVM • Oscilloscope • Test tape ··· QZZCFM	1. Test equipment connection is shown in fig. 4. 2. Place UNIT into playback mode. 3. Playback the frequency response test tape (QZZCFM). 4. Measure output level at 315 Hz, 12.5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz and 63 Hz, and compare each output level with the standard frequency 315 Hz, at LINE OUT. 5. Make measurement for both channels. 6. Make sure that the measured value is within the range specified in the frequency response chart (shown in fig. 10). **Playback frequency response chart**  **Fig. 10**
Ⓔ Playback gain Condition: • Playback mode • Tape selector ··· Normal position Equipment: • VTVM • Oscilloscope • Test tape ··· QZZCFM	1. Test equipment connection is shown in fig. 4. 2. Playback standard recording level portion on test tape (QZZCFM 315 Hz), and using VTVM measure the output level at LINE OUT. 3. Make measurement for both channels. **Standard value: 0.4 V ± 1 dB [around 0.42 V: at test points TP5 (L-CH) and TP6 (R-CH)]** **Adjustment** 1. If measured value is not within standard, adjust VR1 (L-CH), VR2 (R-CH) (See fig. 2 on page 3). 2. After adjustment, check "Playback frequency response" again.
Ⓕ Erase current Condition: • Record mode • Tape selector ··· Metal position Equipment: • VTVM • Oscilloscope	1. Test equipment connection is shown in fig. 11. 2. Press the record and pause buttons. 3. Set the tape selector to metal position. 4. Read voltage on VTVM and calculate erase current by following formula: $\text{Erase current (A)} = \frac{\text{Voltage across both ends of R101}}{1\,(\Omega)}$ **Standard value: 160^{+10}_{-20} mA (Metal position)**  **Fig. 11** 5. If measured value is not within standard, adjust as follows. **Adjustment** 1. Open the point (A) and short the point (B) on the main circuit board in the wiring connection diagram (See page 8). 2. Make measurement for erase current. 3. Make sure that the measured value is within the erase current of 140 mA to 170 mA. 4. If it is beyond the value, carry out the following adjustments: • If the erase current is less than 140 mA, short the point (A). • If the erase current is more than 170 mA, open the points (A) and (B).
Ⓖ Overall frequency response Condition: • Record/playback mode • Tape selector ··· Normal position ··· CrO_2 position ··· Metal position • Input level controls ··· MAX	**Note 1:** Before measuring and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response). **Note 2:** Test tape QZZCRA to be supplied after July 1980 has higher recording sensitivity in the middle and high frequency range. **Overall frequency response chart (Normal)**  **Fig. 12**

ITEM	MEASUREMENT & ADJUSTMENT

Equipment:
- VTVM
- AF oscillator
- ATT
- Oscilloscope
- Resistor (600Ω)
- Test tape (reference blank tape)
  - ···QZZCRA for Normal
  - ···QZZCRX for CrO_2
  - ···QZZCRZ for Metal

* This chart indicates the standard values for the new type of QZZCRA when in use.
* This chart indicates the standard values for the former type of QZZCRA when in use.

The new type of QZZCRA is marked as shown in fig. 13.

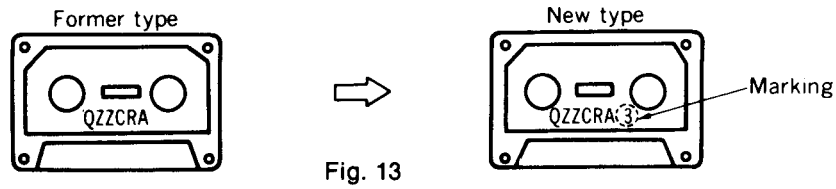


Fig. 13

Overall frequency response adjustment by recording bias current

Note 1:
On RS-M205, overall frequency response is adjusted with tape selector set at Normal.

Note 2:
Recording equalizer is fixed.

1. Make connections as shown in fig 14.
2. Input a 1 kHz, −24 dB signal through LINE IN. Place the set in record mode.
3. Fine adjust the attenuator to obtain 0.4 V LINE OUT output.
   * Make sure that the input signal level is −24 ± 4 dB with 0.4 V output voltage.

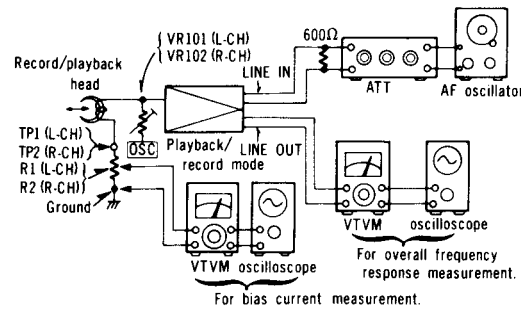


Fig. 14

4. Set the tape selector to Normal, and load the test tape (QZZCRA).
5. Adjust the attenuator to reduce the input signal level by 20 dB.
6. Adjust the AF oscillator to generate 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz and 10 kHz signals, and record these signals on the test tape.
7. Playback the signals recorded in step 6, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 12).
   (If the curve is within the charted specifications, proceed to steps 8, 9 and 10.)
   If the curve is not within the charted specifications, adjust as follows;

Adjustment Ⓐ:
When the curve exceeds the overall frequency response chart specifications (fig. 12) as shown in fig. 15.

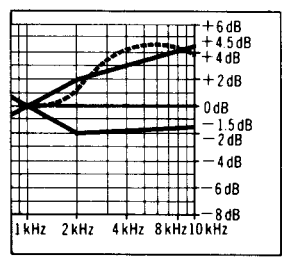


Fig. 15

1) Increase bias current by turning VR101 (L-CH) and VR102 (R-CH). (See fig. 2 on page 3.)
2) Repeat steps 6 and 7 to confirm. (Proceed to steps 8, 9 and 10 if the curve is now within the charted specifications in fig. 12.)
3) If the curve still exceeds the specifications (fig. 12), increase bias current further and repeat steps 6 and 7.

Adjustment Ⓑ:
When the curve falls below the overall frequency response chart specifications (fig. 12) as shown in fig. 16.

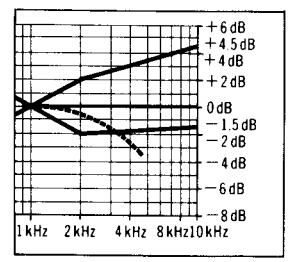
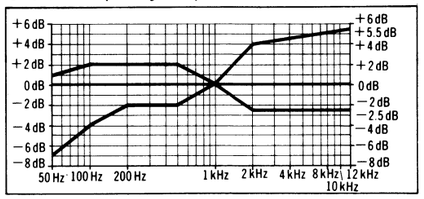
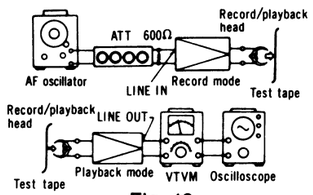
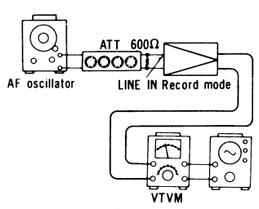
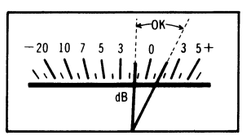
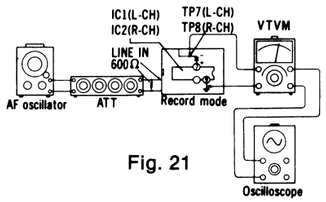


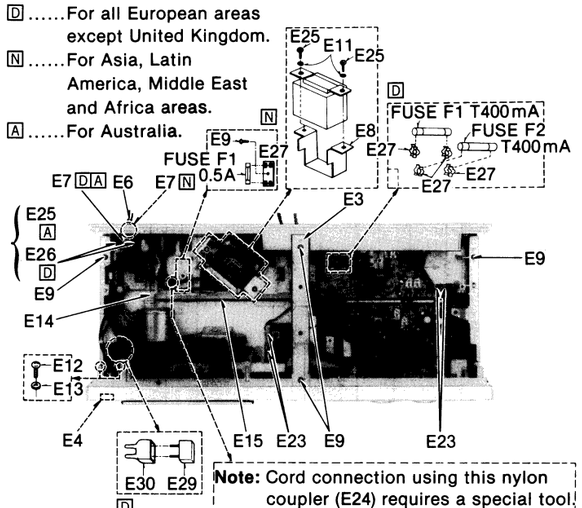
Fig. 16

1) Reduce bias current by turning VR101 (L-CH) and VR102 (R-CH).
2) Repeat steps 6 and 7 to confirm. (Proceed to steps 8, 9 and 10 if the curve is now within the charted specifications in fig. 12.)
3) If the curve still falls below the charted specifications (fig. 12), reduce bias current further and repeat steps 6 and 7.

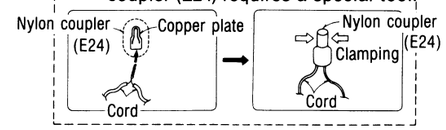
ITEM	MEASUREMENT & ADJUSTMENT
	8. Switch the tape selector to CrO_2, change test tape to QZZCRX, and record 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz and 12.5 kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO_2 tapes (fig. 17). Overall frequency response chart (CrO_2, Metal)  Fig. 17 9. Switch the tape selector to Metal, change test tape to QZZCRZ, and record 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz and 12.5 kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 17). 10. Confirm that bias currents are approximately as follows when the tape selector is set at different positions. * Read voltage on VTVM and calculate bias current by following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\ (\Omega)}$ **around 410μA (Normal position)** **around 545μA (CrO_2 position)** **around 800μA (Metal position)** **: measured at TP1 (L-CH) and TP2 (R-CH)**
Ⓗ Overall gain Condition: • Record/playback mode • Input level controls ··· MAX • Standard input level; MIC ····· −72 ± 4 dB LINE IN ··· −24 ± 4 dB Equipment: • VTVM • AF oscillator • ATT • Oscilloscope • Resistor (600 Ω) • Test tape (reference blank tape) ··· QZZCRA for Normal	1. Test equipment connection is shown in fig. 18. 2. Place UNIT into record mode, and tape selector to normal position. 3. Supply 1 kHz signal (−24 dB) from AF oscillator, through ATT to LINE IN. 4. Adjust ATT until monitor level at LINE OUT becomes 0.4 V. 5. Using test tape, make recording. 6. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.4 V. 7. If measured value is not 0.4 V, adjust VR5 (L-CH), VR6 (R-CH) (See fig. 2 on page 3). 8. Repeat from step (2).  Fig. 18
Ⓘ Level meter Condition: • Record mode • Input level control ··· MAX Equipment • VTVM • AF oscillator • ATT • Oscilloscope • Resistor (600Ω)	1. Test equipment connection is shown in fig. 19. 2. Supply 1 kHz signal (−24 dB) to the LINE IN then press the record button. 3. Adjust the ATT so that the output level at LINE OUT becomes 0.4 V (The input level at this condition is termed the standard input level). 4. At this time, confirm that the level meter reading is within a range of −1.5 dB to +1.5 dB (shown in fig. 20). (Confirm this for both for L and R channels.)  Fig. 19  Fig. 20
Ⓙ Dolby NR circuit Condition: • Record mode • Dolby NR switch ··· IN/OUT • Input level controls ··· MAX Equipment: • VTVM • AF oscillator • ATT • Oscilloscope • Resistor (600 Ω)	1. Test equipment connection is shown in fig. 21. 2. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain −34.5 dB at TP5 (L-CH), TP6 (R-CH) (frequency 5 kHz). 3. Confirm that the value at IN position is 8 (± 2.5) dB greater than the value at OUT position of Dolby NR switch.  Fig. 21

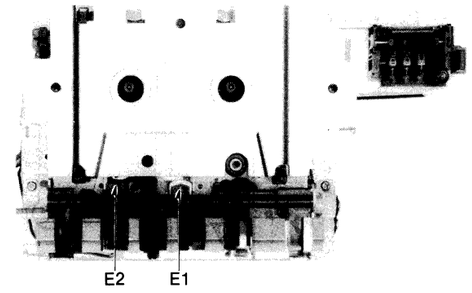
ELECTRICAL PARTS LOCATION

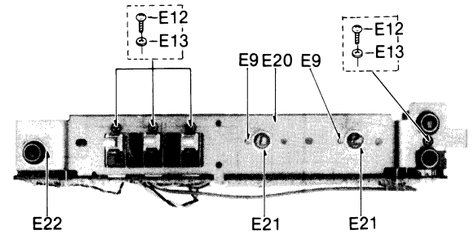
NOTES:
- D .....For all European areas except United Kingdom.
- N .....For Asia, Latin America, Middle East and Africa areas.
- A .....For Australia.

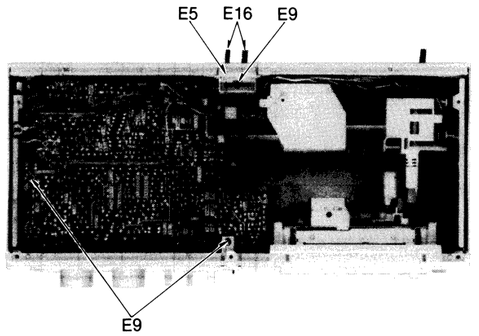


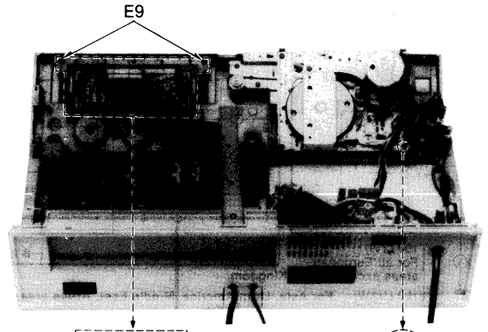
Note: Cord connection using this nylon coupler (E24) requires a special tool.

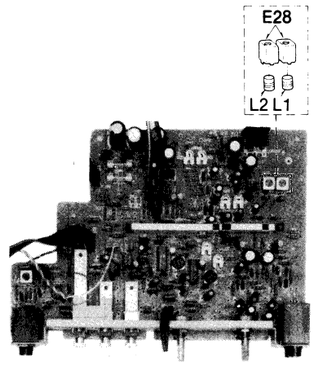












REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
	ELECTRICAL PARTS	
E1	QWY4122Z	Record/Playback Head
E2	QWY2138Z	Erase Head
E3	QMA4061	Center Angle
E4	QG01798	Push Button (for Power ON/OFF)
E5	QKJ0437	Cord Clamper (for Pin Cords)
	"Silver Type"	
	QKJ0437K	"
	"Black Type"	
E6 D ⚠	SJA88	AC Power Cord
※For all European areas except United Kingdom.		
N ⚠	RJA52ZB-K	"
※For Asia, Latin America, Middle East and Africa areas.		
A ⚠	QFC1208M	"
※For Australia.		
E7 D N A	QTD1164	Cord Clamper
※For all European areas and Australia except United Kingdom.		
N	QTD1129	Cord Bushing
※For Asia, Latin America, Middle East and Africa areas.		
E8	QTS1531	Shield Plate (for AC Power Transformer)
E9	XTN3+10B	Tapping Screw ⊕3×10
E10	QJT0015	Lug Terminal
E11	XWG3	Washer 3φ
E12	XSN3+6S	Screw ⊕3×6
E13	XWA3B	Washer 3φ
E14	QML3711	Recording Lever
E15	QBS1132	Recording Wire
E16	QFC2135	Pin Cord
E17	QSL1115RNM	Level Meter
E18	QKJ0464	Meter Holder
E19	XAMQ46P100N	Pilot Lamp
E20	QMA4060	Volume Angle
E21	QNQ1004	Nut 8φ
E22	QNQ1070	Nut 12φ
E23	QJT1041	Check Pin
E24 ⚠	QJT1079	Nylon Coupler
E25	XTN3+12B	Tapping Screw ⊕3×12
E26 D	XTN3+16B	Tapping Screw ⊕3×16
※For all European areas except United Kingdom.		
E27 D ⚠	QTF1054	Fuse Holder
※For all European areas except United Kingdom.		
N ⚠	QTF1032	"
※For Asia, Latin America, Middle East and Africa areas.		
E28	QTS1532	Shield Plate (for L1 and L2)
E29 D ⚠	QCR0011	Spark Killer
※For all European areas except United Kingdom.		
E30 D	QTW1195	Spark Killer Cover
※For all European areas except United Kingdom.		

SCHEMATIC DIAGRAM

• Important safety notice
Components identified by △ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

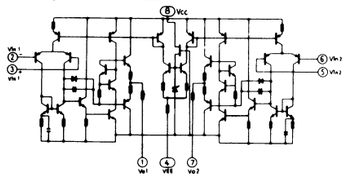
NOTE:
- S1-1—S1-14.....Record/Playbask select switch (shown in playback position).
- S2-1—S1-2 .....Input select switch (shown in LINE IN position).
- S3-1—S3-2 .....Dolby IN/OUT select switch (shown in OUT position).
- S4-1—S4-5 .....Tape select switch (shown in normal position).
- S5.....AC Power voltage select switch.
  - * For all European areas except United Kingdom.
  - * For Asia, Latin America, Middle Ease and Africa areas.
- S6.....Power ON/OFF switch (shown in OFF position).
- S7.....Cue/Review muting switch (shown in off position).
- S8.....Playback muting switch (shown in off position).
- VR1, 2 .....Playback gain adjustment VR.
- VR3, 4 .....Input level controls.
- VR5, 6 .....Recording gain adjustment VR.
- VR101, 102 .....Bias current adjustment VR.
- Connection points (A) and (B).....For erase current adjustment.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. K = 1,000Ω, M = 1,000KΩ.
- Capacity are in microfarads (μF) unless specified otherwise. P = Pico-farads.
- The mark (▼) shows test point. e.g. ▼ = Test point 1.
- (⇨) this arrow indicates the flow of the playback signal.
- (➡) this arrow indicates the flow of the recording signal.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position. For mfeasurement, use VTVM. However, the voltage in playback mode is indicates in ( ) when it differs from that in record mode.
- Described in the schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type of number is used for supply parts number and production parts number when they are identical.

  e.g. Q1
  2SB745(T,U) ◄— Production parts number
  [2SB745T] ◄— Supply parts number
  D1
  QVD1S2473T ◄— Production parts number
  [MA161] ◄— Supply parts number

The supply parts number is described alone in the replacement parts list.

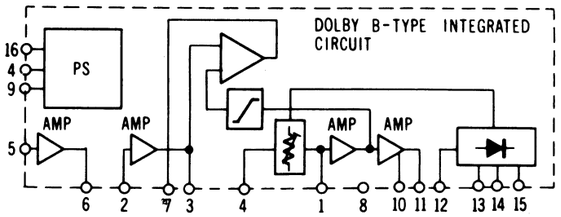
EQUIVALENT CIRCUIT

IC3-1, 3-2 AN6552



TRANSISTORS (SIDE VIEW)

IC1, 2 NE646B



SPECIFICATIONS • Input level controls···MAX.

Playback S/N ratio Test tape ··· QZZCFM	Greater than 45dB (without NAB filter)
Overall distortion Test tape ··· QZZCRA for Normal ··· QZZCRX for CrO_2 ··· QZZCRZ for Metal	Less than 4%
Overall S/N ratio Test tape ··· QZZCRA	Greater than 43dB

NOTES: RESISTORS
ERD...Carbon
ERG...Metal-oxide
ERS...Metal-oxide
ERO...Metal-film
ERX...Metal-film
ERQ...Fuse type metallic
ERC...Solid
ERF...Cement

CAPACITORS
ECBA.....Ceramic
ECGΩ.....Ceramic
ECKΩ.....Ceramic
ECCΩ.....Ceramic
ECFΩ.....Ceramic
ECQM.....Polyester film
ECQE.....Polyester film
ECQF.....Polypropylene
ECEΩ.....Electrolytic
ECEΩN...Non polar electrolytic
ECQS.....Polystyrene
ECSΩ.....Tantalum
QCS.....Tantalum

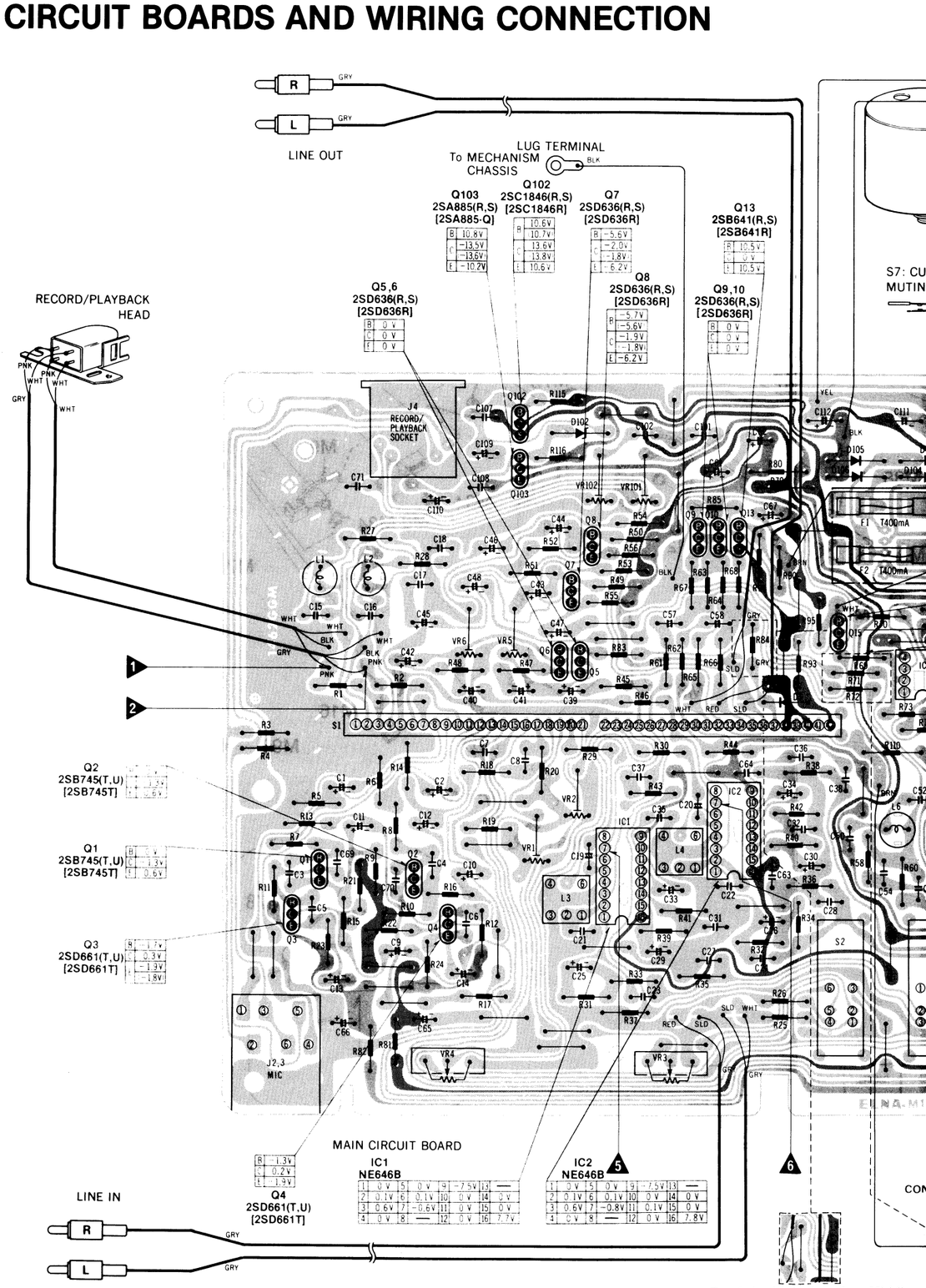
REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.
RESISTORS	
R1, 2	ERD25FJ100
R3, 4	ERD25FJ562
R5, 6	ERD25TJ104
R7, 8	ERD25FJ101
R9, 10	ERD25TJ104
R11, 12	ERD25TJ823
R13, 14	ERD25FJ101
R15, 16	ERD25TJ184
R17, 18	ERD25FJ392
R19, 20	ERD25FJ272
R21, 22	ERD25FJ562
R23, 24	ERD25FJ332
R25, 26	ERD25TJ473
R27, 28	ERD25FJ392
R29, 30	ERD25FJ102
R31, 32	ERD25TJ474
R33, 34	ERD25TJ473
R35, 36	ERD25FJ332
R37, 38	ERD25TJ105
R39, 40	ERD25TJ274
R41, 42	ERD25TJ184
R43, 44	ERD25FJ181
R45, 46	ERD25FJ272
R47, 48	ERD25FJ102
R49, 50	ERD25TJ683
R51, 52	ERD25TJ224
R53, 54	ERD25FJ822
R55, 56	ERD25FJ681
R57, 58	ERD25FJ272
R59, 60	ERD25FJ102
R61, 62	ERD25FJ471
R63, 64	ERD25TJ223
R65, 66	ERD25FJ102
R67, 68	ERD25FJ3R3
R69, 70	ERD25TJ333
R71, 72 Ⓓ	ERD25TJ273
*For all European areas except United Kingdom.	
R73, 74	ERD25TJ104
R75, 76	ERD25FJ121
R79, 80 Ⓓ	ERG12ANJ820
*For all European areas except United Kingdom.	
ⓃⒶ	ERD25FJ820
*For Asia, Latin America, Middle East, Africa areas and Australia.	
R81, 82	ERD25FJ102
R83 Ⓓ	ERD25FJ222
*For all European areas except United Kingdom.	
ⓃⒶ	ERD25FJ472
*For Asia, Latin America, Middle East, Africa areas and Australia.	
R84 Ⓓ	ERD25FJ222
*For all European areas except United Kingdom.	
R85	ERD25FJ102
R90	ERD25TJ563
R93	ERD25FJ102
R94	ERD25TJ153
R95	ERD25TJ223
R101	ERD25FJ1R0
R102	ERD25FJ391
R103	ERD25FJ471
R104	ERD25FJ562
R105	ERD25FJ100
R106	ERD25FJ562
R107	ERD25FJ100
R108	ERD50FJ101
R109	ERD25FJ101
R110 Ⓓ	ERG2ANJ101
*For all European areas except United Kingdom.	
ⓃⒶ	ERD50FJ101
*For Asia, Latin America, Middle East, Africa areas and Australia.	
R112	ERD25FJ821
R115. 116 Ⓐ	ERD25FJ681
R301, 302	ERD25FJ152
VARIABLE RESISTORS	
VR1, 2	EVNM4AA00B24
VR3, 4	QVH3AA067A54
VR5, 6	EVNM4AA00B54
VR101, 102	EVNM4AA00B15
CAPACITORS	
C1, 2	ECEA25M4R7R
C3, 4, 5, 6	ECFDD102KVY
C7, 8	ECQM1H183KZ
C9, 10	ECEA1HS100
C11, 12	ECEA0JS471
C13, 14	ECEA1ES220
C15, 16	ECKD2H121KBL
C17, 18	ECFDD102KVY
C19, 20	ECEA1HN010
C21, 22	ECFDD392KVY
C23, 24	ECQM1H472JZ
C25, 26	ECEA1HS100
C27, 28	ECQM1H273JZ
C29, 30	ECEA50MR33R
C31, 32	ECQV05104JZ
C33, 34	ECEA1HS100
C35, 36	ECFDD473KXY
C37, 38	ECQM1H562JZ
C39, 40	ECEA1HS100
C41, 42, 43, 44	ECEA50Z2R2
C45, 46	ECEA50Z1
C47, 48	ECEA1HS100
C49, 50	ECQM1H333JZ
C51, 52	ECFDD822KVY
C53, 54	ECFDD273KXY
C55, 56	ECFDD333KXY
C57, 58	ECEA1HN010
C61	ECEA1AS331
C62	ECEA1AS102
C63, 64	ECKD1H223ZF
C65, 66	ECEA1AS101
C67	ECEA50Z3R3
C69, 70	ECKD1H391KB
C71	ECKD1H102MD
C101, 102	ECCD1H121KD
C103	ECQP1183JZ
C104	ECFDD153KXY
C105	ECEA1ES101
C106	ECFDD822KVY
C107, 108	ECQV05104JZ
C109, 110	ECEA1CS471
C111, 112 Ⓐ	ECEA1CS102
TRANSISTORS	
Q1, 2	2SB745T
Q3, 4	2SD661T
Q5, 6, 7, 8, 9, 10	2SD636R
Q13	2SB641R
Q15	2SD636R
Q101	2SD592NCS
Q102	2SC1846R
Q103	2SA885Q
DIODES	
D1	MA161
D101	TLR205
D102	RVD1N4748
D103, 104, 105, 106 Ⓐ	SM112
D301, 302	20A90
INTEGRATED CIRCUITS	
IC1, 2	NE646B
IC3	AN6552

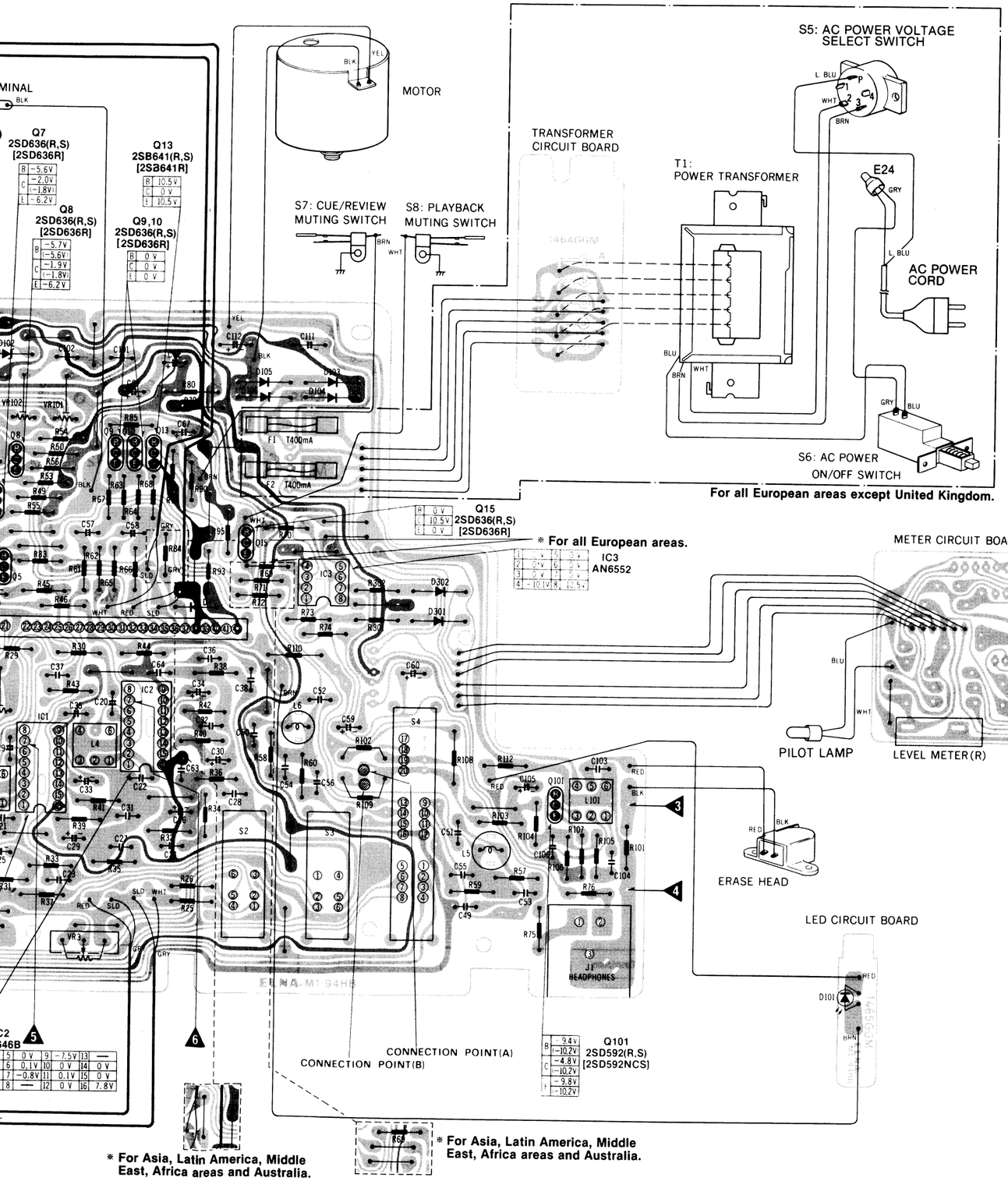
Ref. No.	Part No.	Part Name & Description
SWITCHES		
S1	QSSE203	Slide Switch (Record/Playback Selector)
S2, 3	QES1544	Lever Switch (Input Selector and Dolby IN/OUT)
S4	QES1490	Lever Switch (Tape Selector)
S5 ⒹⒶ	QSR1409H	Rotary Switch (AC Power Voltage Selector)
*For all European areas except United Kingdom.		
ⓃⒶ	QSR1407H	〃
*For Asia, Latin America, Middle East and Africa areas.		
S6 Ⓐ	QSW1117AS	Push Switch (Power ON/OFF)
S7, 8	QSB0251i	Leaf Switch (Cue/Review and Playback Muting)
TRANSFORMER		
T1 ⒹⒶ	QLPD52EKC	AC Power Transformer
*For all European areas except United Kingdom.		
ⓃⒶ	QLPN64EKC	〃
*For Asia, Latin America, Middle East and Africa areas.		
ⒶⒶ	QLPA61EKC	〃
*For Australia.		
COILS		
L1, 2	QLQX0343K	Bias Trap Coil
L3, 4	SLM1Z19	MPX Filter
L5, 6	QLQX0332K	Peaking Coil
L101	QLB0198K	Bias Oscillation Coil
FUSES		
F1 ⒹⒶ	XBAQ0007	Fuse (T400mA)
*For all European areas except United Kingdom.		
ⓃⒶ	XBA1E05NR1	Fuse (0.5A)
*For Asia, Latin America, Middle East and Africa areas.		
F2 ⒹⒶ	XBAQ0007	Fuse (T400mA)
*For all European areas except United Kingdom.		
JACKS		
J1	QJA0249	Headphones Jack
J2, 3	QJA0257	Microphone Jack
J4	QJS1954H	Record/Playback Connection Socket (DIN Socket)

CIRCUIT BOARDS AND WIRING CONNECTION

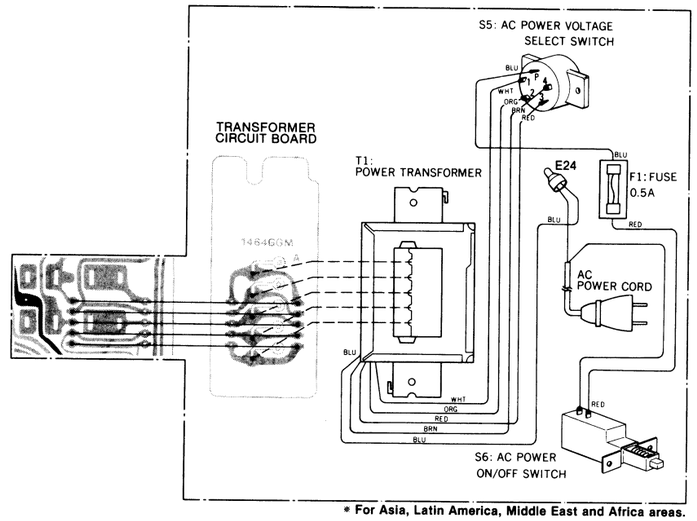


* For Asia, Latin America, Middle East, Africa areas and Australia.

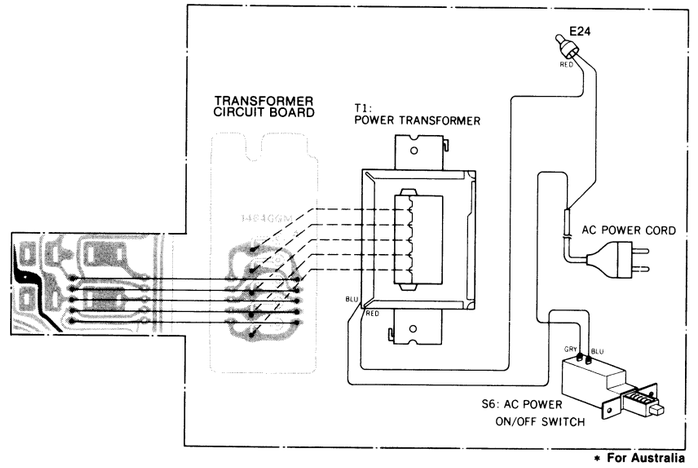
NECTION



For all European areas except United Kingdom.



*** For Asia, Latin America, Middle East and Africa areas.**



*** For Australia**

NOTES:

- The circuit shown in ▬ on the conductor is + B (bias) circuit.
- The circuit shown in ▬ on the conductor is − B (bias) circuit.
- The circuit shown in ▬ on the conductor side indicates printed circuit on the back side of the printed circuit board.
- Values indicated in ▭ are DC voltage between the ground and electrical parts.
- The voltage indicates are measured during record mode.
- However, the voltage in playback mode is indicates in ( ) when it differs from that in record mode.

- Described in the circuit board diagram are two types of numbers; the supply parts number and production parts number for transistors. One type of number is used for supply parts number and production parts number when they are identical.
  - **e.g.** Q1
    - **2SB745(T,U) —— Production parts number**
    - **[2SB745T] —— Supply parts number**
- **The supply parts number is described alone in the replacement parts list.**

.....Polypropylene
.....Electrolytic
...Non polar electrolytic
.....Polystyrene
.....Tantalum
.....Tantalum

or safety.
ed parts.

	Ref. No.	Part No.
UZ	C105	ECEA1ES101
	C106	ECFDD822KVY
UZ	C107, 108	ECQV05104JZ
BR	C109, 110	ECEA1CS471
Z	C111, 112	
	▲	ECEA1CS102
	TRANSISTORS	
	Q1, 2	2SB745T
	Q3, 4	2SD661T
	Q5, 6, 7, 8, 9, 10	2SD636R
	Q13	2SB641R
	Q15	2SD636R
	Q101	2SD592NCS
	Q102	2SC1846R
	Q103	2SA885Q
	DIODES	
	D1	MA161
	D101	TLR205
	D102	RVD1N4748
	D103, 104, 105, 106	
	▲	SM112
	D301, 302	20A90
	INTEGRATED CIRCUITS	
	IC1, 2	NE646B
Y	IC3	AN6552

ame & Description
yback Selector)
or and Dolby IN/OUT)
(Tape Selector)
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nA)
dom.
Jack
ack
ack Connection
Socket)

CIRCUIT BOARDS AND WIRING CONNECTION

R GRY
L GRY
LINE OUT
LUG TERMINAL
To MECHANISM CHASSIS BLK
MOTOR BLK YEL
RECORD/PLAYBACK HEAD
PNK PNK WHT WHT GRY WHT

Q103 2SA885(R,S) [2SA885-Q]: B 10.8V, C −13.5V, E −13.6V
Q102 2SC1846(R,S) [2SC1846R]: B 10.6V (10.7V), C 13.6V (13.8V), E 10.6V
Q7 2SD636(R,S) [2SD636R]: B −5.6V, C −2.0V (−1.8V), E −6.2V
Q13 2SB641(R,S) [2SB641R]: B 10.5V, C 0V, E 10.5V
Q5,6 2SD636(R,S) [2SD636R]: B 0V, C 0V, E 0V
Q8 2SD636(R,S) [2SD636R]: B −5.7V (−5.6V), C −1.9V (−1.8V), E −6.2V
Q9,10 2SD636(R,S) [2SD636R]: B 0V, C 0V, E 0V

S7: CUE/REVIEW MUTING SWITCH
S8: PLAYBACK MUTING SWITCH
BRN WHT

TRANSFORMER CIRCUIT BOARD
1464GGM
T1: POWER TRANSFORMER
S5: AC POWER VOLTAGE SELECT SWITCH
L BLU WHT BRN
E24 GRY
L BLU
AC POWER CORD
BLU WHT BRN
GRY BLU
S6: AC POWER ON/OFF SWITCH

For all European areas except United Kingdom.

Q15 2SD636(R,S) [2SD636R]: B 0V, C 10.5V, E 0V

*** For all European areas.**

IC3 AN6552

1	0V	5	0V
2	0V	6	0V
3	0V	7	0V
4	−10.1V	8	10.5V

METER CIRCUIT BOARD
1463GGM
BLU WHT
PILOT LAMP
LEVEL METER(R)
LEVEL

1 2

Q2 2SB745(T,U) [2SB745T]: B 0V, C −1.3V, E 0.6V
Q1 2SB745(T,U) [2SB745T]: B 0V, C −1.3V, E 0.6V
Q3 2SD661(T,U) [2SD661T]: B −1.7V, C 0.3V, E −1.9V (−1.8V)

1462GGM
ELNA M194HB

MAIN CIRCUIT BOARD

Q4 2SD661(T,U) [2SD661T]: B −1.3V, C 0.2V, E −1.9V

IC1 NE646B

1	0V	5	0V	9	−7.5V	13	—
2	0.1V	6	0.1V	10	0V	14	0V
3	0.6V	7	−0.6V	11	0V	15	0V
4	0V	8	—	12	0V	16	7.7V

IC2 NE646B

1	0V	5	0V	9	−7.5V	13	—
2	0.1V	6	0.1V	10	0V	14	0V
3	0.6V	7	−0.8V	11	0.1V	15	0V
4	0V	8	—	12	0V	16	7.8V

LINE IN
R GRY
L GRY

CONNECTION POINT(A)
CONNECTION POINT(B)

Q101 2SD592(R,S) [2SD592NCS]: B −9.4V (−10.2V), C −4.8V (−10.2V), E −9.8V (−10.2V)

ERASE HEAD
RED BLK

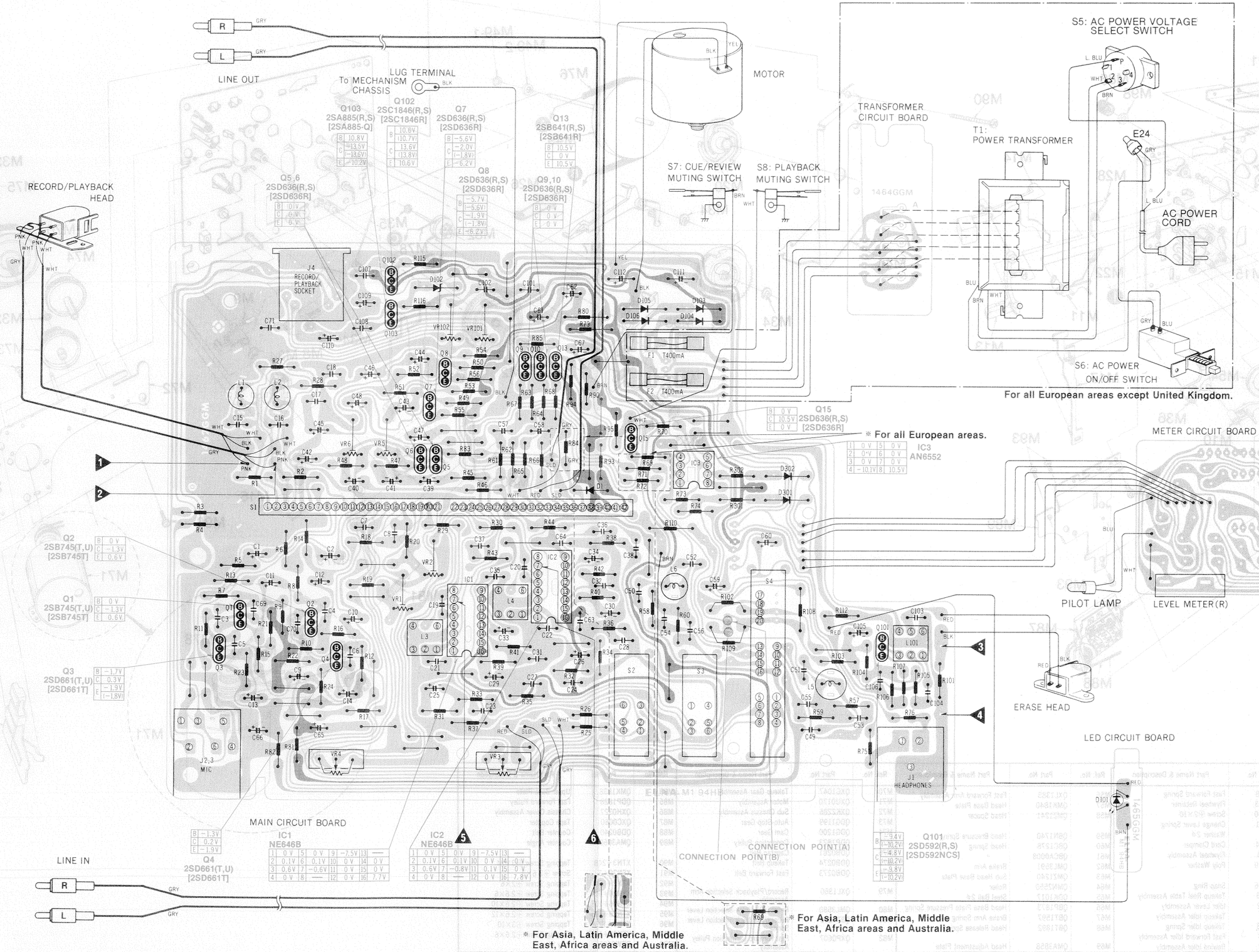
LED CIRCUIT BOARD
D101 RED BRN
1465GGM

*** For Asia, Latin America, Middle East, Africa areas and Australia.**

*** For Asia, Latin America, Middle East, Africa areas and Australia.**

NOTES:
- The circuit shown in ■ on the c
- The circuit shown in ■ on the c
- The circuit shown in ■ on the c back side of the printed circuit boar
- Values indicated in □ are DC vo
- The voltage indicates are measured
- However, the voltage in playback m that in record mode.

CIRCUIT BOARDS AND WIRING CONNECTION



Q2 2SB745(T,U) [2SB745T]: B 0 V, C −1.3 V, E 0.6 V

Q1 2SB745(T,U) [2SB745T]: B 0 V, C −1.3 V, E 0.6 V

Q3 2SD661(T,U) [2SD661T]: B −1.7 V, C 0.3 V, E −1.9 V (−1.8 V)

Q4 2SD661(T,U) [2SD661T]: B −1.3 V, C 0.2 V, E −1.9 V

Q103 2SA885(R,S) [2SA885-Q]: B 10.8 V, C −13.5 V, E −10.2 V

Q102 2SC1846(R,S) [2SC1846R]: B 10.6 V, C 13.6 V, E 10.6 V

Q7 2SD636(R,S) [2SD636R]: B −5.6 V, C −2.0 V, E −6.2 V

Q13 2SB641(R,S) [2SB641R]: B 10.5 V, C 0 V, E 10.5 V

Q8 2SD636(R,S) [2SD636R]: B −5.7 V, C −1.9 V, E −6.2 V

Q5,6 2SD636(R,S) [2SD636R]: B 0 V, C 0 V, E 0 V

Q9,10 2SD636(R,S) [2SD636R]: B 0 V, C 0 V, E 0 V

Q15 2SD636(R,S) [2SD636R]: B 0 V, C 10.5 V, E 0 V

Q101 2SD592(R,S) [2SD592NCS]: B −9.4 V, C (−10.2 V), E −9.8 V

IC1 NE646B

1	0 V	5	0 V	9	−7.5 V	13	—
2	0.1 V	6	0.1 V	10	0 V	14	0 V
3	0.6 V	7	−0.6 V	11	0 V	15	0 V
4	0 V	8	—	12	0 V	16	7.7 V

IC2 NE646B

1	0 V	5	0 V	9	−7.5 V	13	—
2	0.1 V	6	0.1 V	10	0 V	14	0 V
3	0.6 V	7	−0.8 V	11	0.1 V	15	0 V
4	0 V	8	—	12	0 V	16	7.8 V

IC3 AN6552

1	0 V	5	0 V
2	0 V	6	0 V
3	0 V	7	0 V
4	−10.1 V	8	10.5 V

NOTES:

- The circuit shown in ▓ on the c
- The circuit shown in ▒ on the c
- The circuit shown in ▒ on the c back side of the printed circuit board
- Values indicated in □ are DC vo
- The voltage indicates are measured
- However, the voltage in playback mo that in record mode.

.....Polypropylene
.....Electrolytic
N ...Non polar electrolytic
.....Polystyrene
.....Tantalum
.....Tantalum

or safety.
ed parts.

	Ref. No.	Part No.
UZ	C105	ECEA1ES101
	C106	ECFDD822KVY
UZ	C107, 108	ECQV05104JZ
BR	C109, 110	ECEA1CS471
Z	C111, 112	
	△	ECEA1CS102
	TRANSISTORS	
	Q1, 2	2SB745T
	Q3, 4	2SD661T
	Q5, 6, 7, 8, 9, 10	2SD636R
	Q13	2SB641R
	Q15	2SD636R
UZ	Q101	2SD592NCS
Y	Q102	2SC1846R
Y	Q103	2SA885Q
	DIODES	
	D1	MA161
	D101	TLR205
F	D102	RVD1N4748
	D103, 104, 105, 106	
	△	SM112
	D301, 302	2OA90
LB	**INTEGRATED CIRCUITS**	
MD	IC1, 2	NE646B
LD	IC3	AN6552
Y		

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yback Selector)
or and Dolby IN/OUT)
(Tape Selector)
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(Power ON/OFF)
and Playback Muting)
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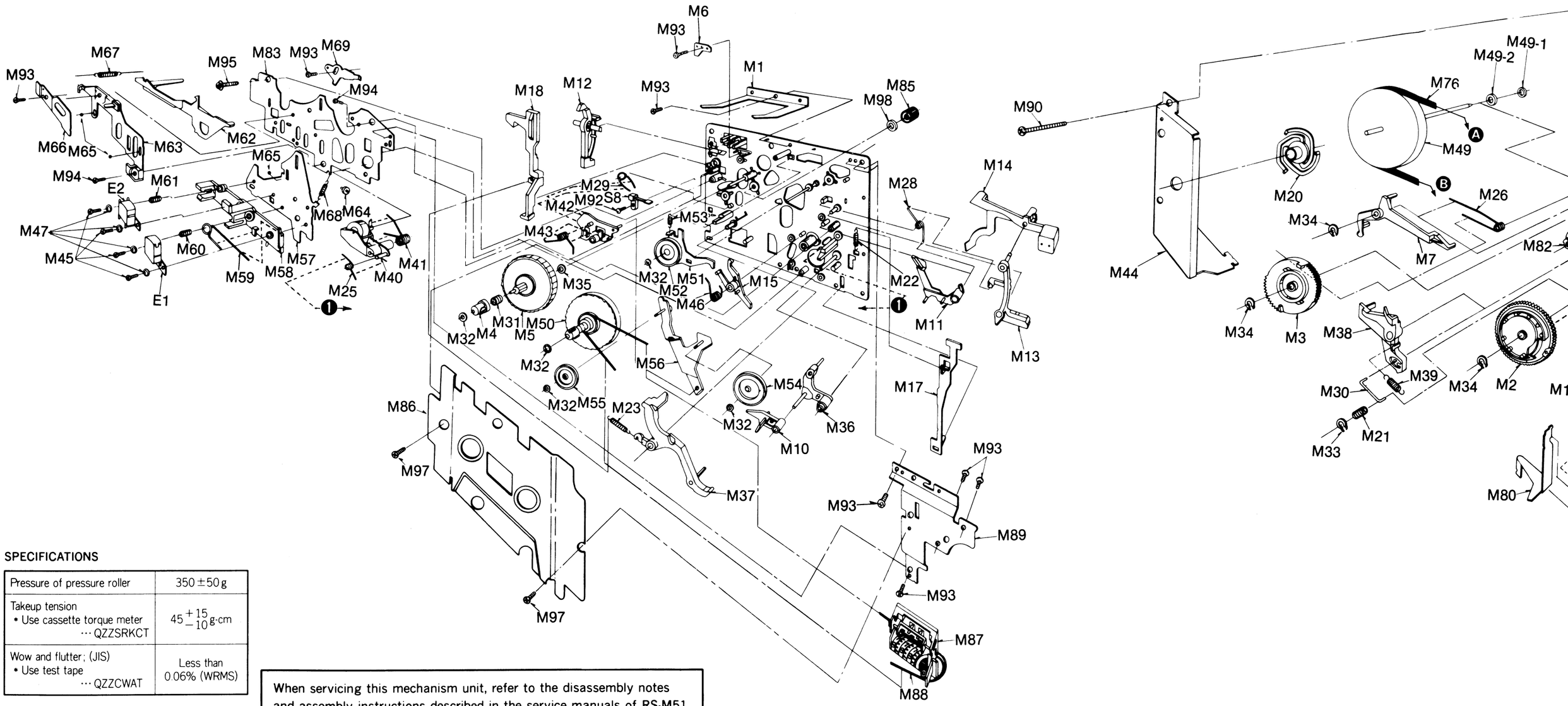
dom.
Jack
ack
back Connection
Socket)

MECHANISM PARTS LOCATION



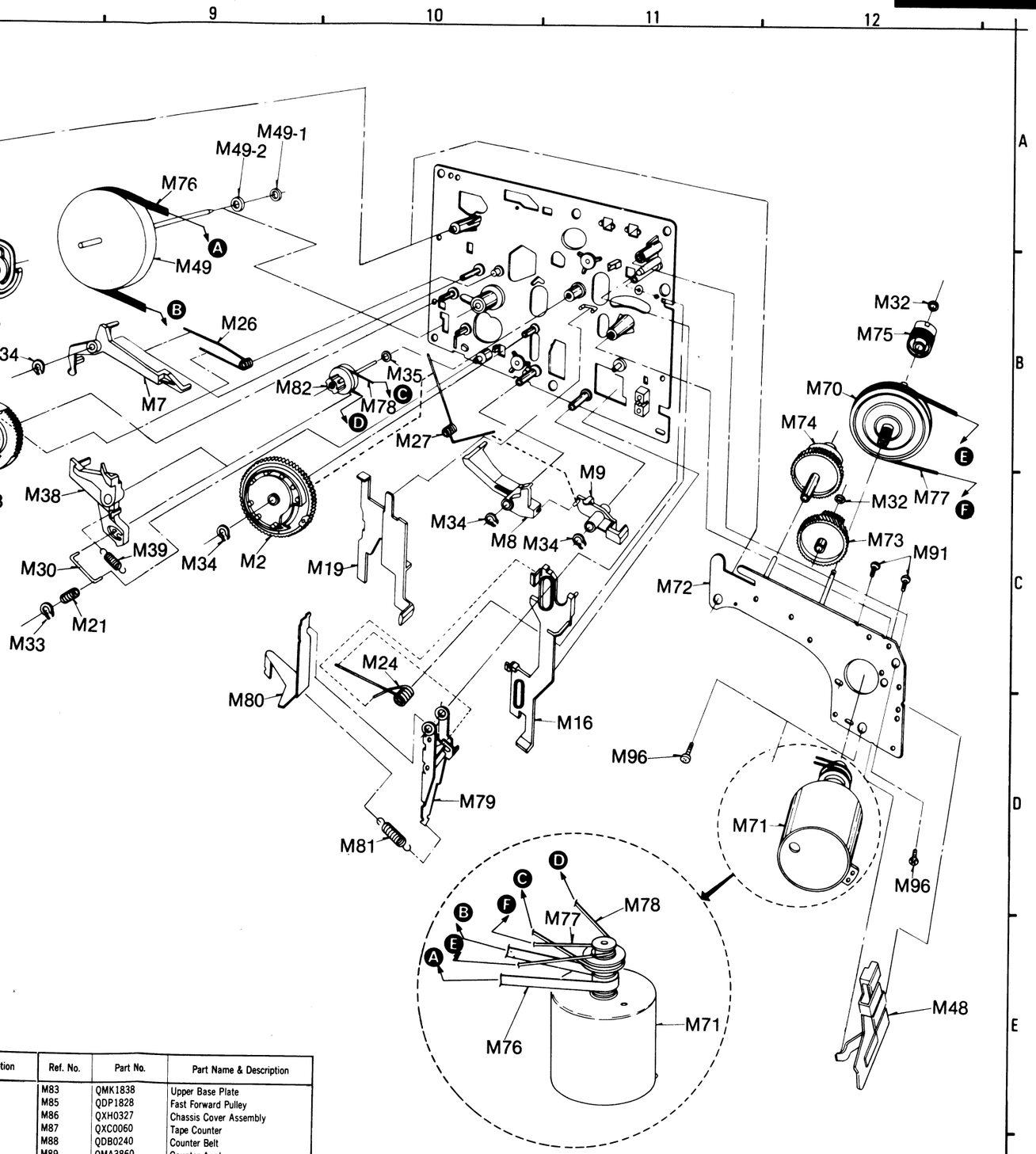
SPECIFICATIONS

Pressure of pressure roller	350 ±50 g
Takeup tension • Use cassette torque meter ··· QZZSRKCT	45^{+15}_{-10} g·cm
Wow and flutter; (JIS) • Use test tape ··· QZZCWAT	Less than 0.06% (WRMS)

When servicing this mechanism unit, refer to the disassembly notes and assembly instructions described in the service manuals of RS-M51, RS-M13, RS-M14 and RS-M04 (RS-M24 mechanism series).

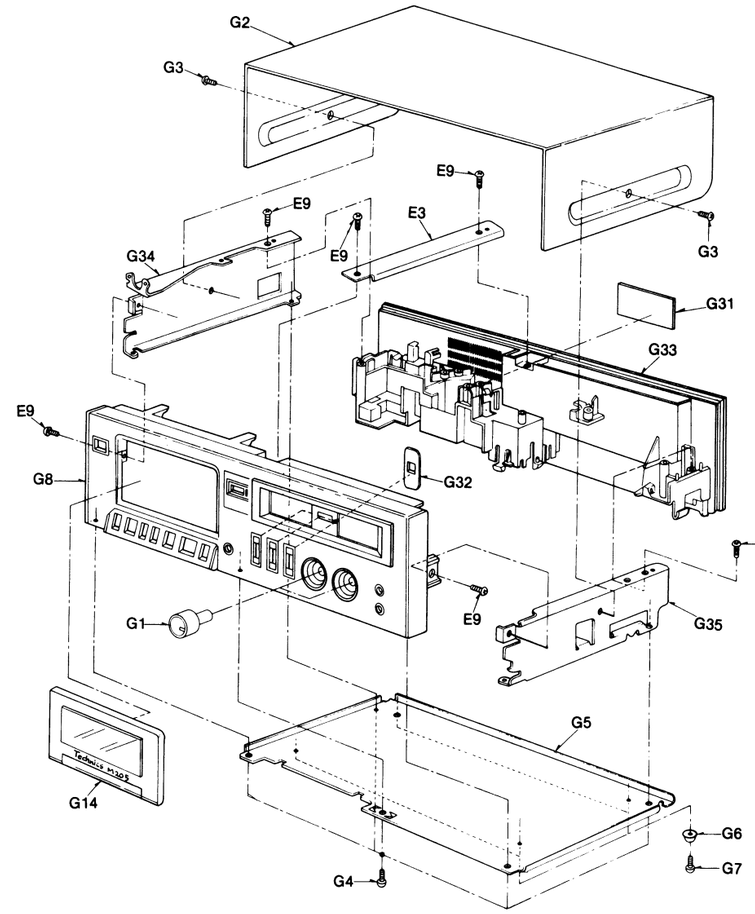
REPLACEMENT PARTS LIST

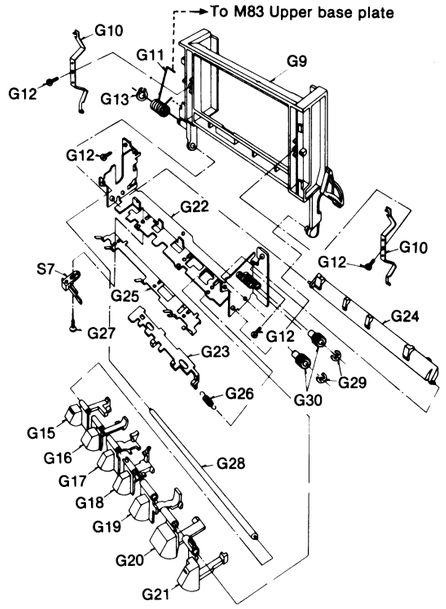
Ref. No.	Part No.	Part Name & Description
		MECHANICAL PARTS
M1	QBP1874	Cassette Pressure Spring
M2	QDG1201	Main Gear
M3	QDG1202	Sub Gear
M4	QMB1336	Supply Reel Table Hub
M5	QDR1139	Supply Reel Table
M6	QMF2118	Fast Forward Arm Bracket
M7	QML3581	Sub Control Lever
M8	QML3583	Main Control Lever
M9	QML3584	Record Operation Lever
M10	QML3586	Head Base Plate Lift Lever
M11	QML3594	Auto-Stop Release Arm
M12	QML3603	Erase Safety Lever
M13	QML3604	Auto-Stop Driving Lever
M14	QML3605	Auto-Stop Detection Lever
M15	QML3592	Change Lever
M16	QMR1820	Record Rod
M17	QMR1821	Auto-Stop Connection Rod
M18	QMR1822	Eject Rod
M19	QMR1824	Control Rod
M20	QMZ1239	Flywheel Thrust Retainer
M21	QBC1357	Lock Pin Pressure Spring
M22	QBT1682	Auto-Stop Connection Rod Spring
M23	QBT1894	Main Lever Spring
M24	QBN1739	Selection Lever Spring
M25	QBN1742	Pressure Roller Release Spring
M26	QBN1744	Sub Gear Spring
M27	QBN1802	Main Gear Spring
M28	QBN1746	Auto-Stop Lever Spring
M29	QBN1747	Connection Spring
M30	QBS1128	Lock Pin
M31	QBC1372	Reel Table Spring
M32	QBW2008	Poly Washer
M33	XUB4FT	Stop Ring 4φ
M34	XUB3FT	Stop Ring 3φ
M35	QBW2012	Poly Washer
M36	QXL1354	Sub Lever Assembly
M37	QXL1355	Main Lever Assembly
M38	QML3582	Pause Lock Lever
M39	QBT1896	Lever Release Spring
M40	QXL1381	Pressure Roller Assembly
M41	QBN1743	Pressure Roller Spring
M42	QML3588	Fast Forward Lever
M43	QBN1748	Fast Forward Spring
M44	QMA4063	Flywheel Retainer
M45	XSN2+10	Screw ⊕2×10
M46	QBN1741	Change Lever Spring
M47	XWG2	Washer 2φ
M48	QMZ1254	Cord Clamper
M49	QXF0164	Flywheel Assembly
M49-1	QBW2049	Poly Washer
M49-2	QBW2026	Snap Ring
M50	QXD1143	Takeup Reel Table Assembly
M51	QXL1382	Idler Lever Assembly
M52	QXi0111	Takeup Idler Assembly
M53	QBT1893	Takeup Idler Spring
M54	QXi0113	Fast Forward Idler Assembly
M55	QXi0112	Rewind Idler Assembly
M56	QXL1383	Fast Forward Arm Assembly
M57	QMK1840	Head Base Plate
M58	QMZ1241	Head Spacer
M59	QBN1740	Head Bressure Spring
M60	QBC1278	Head Spring
M61	QBCA0008	"
M62	QML3591	Brake Arm
M63	QML1240	Sub Head Base Plate
M64	QMN2550	Roller
M65	QBP1873	Head Base Plate Pressure Spring
M66	QBT1597	Brake Arm Spring
M67	QBT1892	Head Release Spring
M68	QMA3858	Head Adjustment Plate
M69	QXG1047	Takeup Gear Assembly
M70	QXU0170	Motor Assembly
M71	QXK2286	Sub Chassis Assembly
M72	QDG1199	Auto-Stop Gear
M73	QDG1200	Cam Gear
M74	QDB0240	Counter Belt
M75	QDP1823	Connection Pulley
M76	QDB0281	Capstan Belt
M77	QDB0274	Takeup Belt
M78	QDB0273	Fast Forward Belt
M79	QXL1360	Record/Playback Selection Arm Assembly
M80	QML3580	Record/Playback Selection Lever
M81	QBT1895	Record/Playback Selection Lever Spring
M82	QXP0607	Fast Forward Connection Pulley Assembly
M83	QMK1838	Upper Base Plate
M85	QDP1828	Fast Forward Pulley
M86	QXH0327	Chassis Cover Assembly
M87	QXC0060	Tape Counter
M88	QDB0240	Counter Belt
M89	QMA3860	Counter Angle
M90	XTN3+24B	Tapping Screw ⊕3×24
M91	XSN26+3	Screw ⊕2.6×3
M92	XTN2+6B	Tapping Screw ⊕2×6
M93	XTN26+6B	Tapping Screw ⊕2.6×6
M94	XTN26+10B	Tapping Screw ⊕2.6×10
M95	XTN26+12B	Tapping Screw ⊕2.6×12
M96	XTN3+10B	Tapping Screw ⊕3×10
M97	XTN26+6BFZ	Tapping Screw ⊕2.6×6
M98	QBW2085	Poly Washer



tion	Ref. No.	Part No.	Part Name & Description
	M83	QMK1838	Upper Base Plate
	M85	QDP1828	Fast Forward Pulley
	M86	QXH0327	Chassis Cover Assembly
	M87	QXC0060	Tape Counter
	M88	QDB0240	Counter Belt
	M89	QMA3860	Counter Angle
	M90	XTN3+24B	Tapping Screw ⊕3×24
	M91	XSN26+3	Screw ⊕2.6×3
	M92	XTN2+6B	Tapping Screw ⊕2×6
Arm	M93	XTN26+6B	Tapping Screw ⊕2.6×6
	M94	XTN26+10B	Tapping Screw ⊕2.6×10
Lever	M95	XTN26+12B	Tapping Screw ⊕2.6×12
Lever	M96	XTN3+10B	Tapping Screw ⊕3×10
	M97	XTN26+6BFZ	Tapping Screw ⊕2.6×6
ulley	M98	QBW2085	Poly Washer

CABINET PARTS LOCATION





REPLACEMENT PARTS LIST

Important safety notice
Components identified by △ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
	CABINET PARTS	
G1	QYT0612	Volume Knob
G2	QGC1202	Case Cover
	"Silver Type"	
	QGC1202K	"
	"Black Type"	
G3	XTB4+8BFN	Tapping Screw ⊕4×8
	"Silver Type"	
	XTB4+8BFZ	"
	"Black Type"	
G4	XTN3+10B	Tapping Screw ⊕3×10

Ref. No.		Part No.	Part Name & Description
G5		QGC1203	Bottom Cover
G6		QKA1083	Rubber Foot
G8		QHQ1299	Step Screw
G8		QYP1016	Front Panel Assembly
		"Silver Type"	
		QYP1017	"
		"Black Type"	
G9		QKF2092K	Cassette Holder
G10		QBP1771	Holder Spring
G11		QBN1749	Eject Spring
G12		XTN26+6B	Tapping Screw ⊕2.6×6
G13		XUB5FT	Stop Ring 5φ
G14	[D]	QYF0488	Cassette Lid Assembly
		"Silver Type"	
	✱For all European areas except United Kingdom.		
	[DN]	QYF0489	"
		"Black Type"	
	✱For all European areas Asia, Latin America, Middle East and Africa areas except United Kingdom.		
	[NA]	QYF0487	"
		"Silver Type"	
	✱For Asia, Latin America, Middle East, Africa areas and Australia.		
G15		QXL1363	Eject Button Assembly
G16		QXL1364	Record Button Assembly
G17		QXL1365	Rewind Button Assembly
G18		QXL1366	Fast Forward Button Assembly
G19		QXL1367	Playback Button Assembly
G20		QXL1368	Stop Button Assembly
G21		QXL1369	Pause Button Assembly
G22		QXA1044	Operation Button Angle
G23		QMR1823	Obstruction Rod
G24		QML3593	Lock Arm
G25		QBP1875	Operation Lever Spring
G26		QBT1597	Obstruction Rod Spring
G27		XTN2+6B	Tapping Screw ⊕2×6
G28		QMN2554	Operation Lever Shaft
G29		XUC4FT	Stop Ring 4φ
G30		QDG1102	Holder Gear
G31	[N]	QGS2905	Main Name Plate
	✱For Asia, Latin America, Middle East and Africa areas.		
	[A]	QGS2896	"
	✱For Australia.		
G32		QGK3123	Switch Shelter
		"Silver Type"	
		QGK3123K	"
		"Black Type"	
G33	[DN]	QMK1914H	Back Chassis
		"Silver Type"	
	✱For all European areas Asia, Latin America, Middle East and Africa areas except United Kingdom.		
	[DN]	QMK1914K	"
		"Black Type"	
	✱For all European areas Asia, Latin America, Middle East and Africa areas except United Kingdom.		
	[A]	QMK1900H	"
		"Silver Type"	
	✱For Australia.		
G34		QMA4058	Side Angle-L
G35		QMA4059	Side Angle-R
	ACCESSORIES		
A1	[D]	QQT3027	Instruction Book
	✱For all European areas except United Kingdom.		
	[N]	QQT3030	"
	✱For Asia, Latin America, Middle East and Africa areas.		
	[A]	QQT3031	"
	✱For Australia.		
A2	[N] △	QJP0603S	AC Plug Adaptor
	✱For Asia, Latin America, Middle East and Africa areas.		
	PACKINGS		
P1	[DA]	QPN4156	Inside Carton
	✱For all European areas and Australia except United Kingdom.		
	[N]	QPN4157	"
	✱For Asia, Latin America, Middle East and Africa areas.		
P2		QPA0602	Cushion-A
P3		QPA0603	Cushion-B
P4		XZB40X60A02	Poly Bag
P5		QPC0072	Sheet
P6	[DA]	QPS0434	Pad
	✱For all European areas and Australia except United Kingdom.		

ARD
Y.F D DK N NK A
Printed in Japan